No. 7435

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United States

Circuit Court of Appeals

For the Ninth Circuit.

SAMUEL EAGLE, JOHN WILLIAM LANGS, and PLOMB TOOL COMPANY, a Corporation,

Appellants,

vs.

P. & C. HAND FORGED TOOL COMPANY, a Corporation,

Appellee.

Transcript of Record

Upon Appeal from the District Court of the United States For the District of Oregon.

PARKER PRINTING COMPANY, 545 SANSOME STREET, SAN FRANCISCO

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur.]

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NAMES AND ADDRESSES OF THE ATTORNEYS OF RECORD:

CAKE & CAKE and JAUREGUY and TOOZE,
Yeon Building, Portland, Oregon, and

W. E. RAMSEY,
Platt Building, Portland, Oregon,
for Appellants.

T. J. GEISLER,
Platt Building, Portland, Oregon,
for Appellee.

In the District Court of the United States for the District of Oregon

No. E-9154

SAMUEL EAGLE, JOHN WILLIAM LANGS, and PLOMB TOOL COMPANY, a corporation,
Plaintiffs-Appellants,

vs.

P & C HAND FORGED TOOL COMPANY, a corporation,
Defendant-Appellee.

CITATION.

United States of America—ss:

The President of the United States of America, to P & C Hand Forged Tool Company, a corporation, defendant, and to T. J. Geisler, its solicitor, GREETING:

You are hereby cited and admonished to be and appear in the United States Circuit Court of Appeals for the Ninth Circuit at San Francisco, California, within thirty (30) days from the

date hereof, pursuant to a petition for appeal filed in the Clerk's Office of the District Court of the United States for the District of Oregon; wherein Samuel Eagle, John William Langs and Plomb Tool Company, a corporation, are the plaintiffs-appellants, and P & C Hand Forged Tool Company, a corporation, is defendant-appellee, to show cause, if any there be, why the decree and order in said petition for appeal mentioned should not be corrected and speedy justice should not be done in that behalf.

Given under my hand at Portland, in the District and Circuit aforesaid this sixth day of November, 1933.

JAMES ALGER FEE
U. S. District Judge for the District of Oregon. [1*]

Service of the above and receipt of a copy thereof duly certified to be a correct copy by W. E. Ramsey, of solicitors for plaintiffs-appellants, is hereby admitted this 6th day of November, 1933.

T. J. GEISLER,
Solicitor for Defendant-Appellee.

[Endorsed]: Filed Nov. 7, 1933. [2]

In the District Court of the United States for the District of Oregon

November Term, 1930.

BE IT REMEMBERED, That on the 21st day of November, 1930, there was duly filed in the District Court of the United States for the District of Oregon, a Bill of Complaint, in words and figures as follows, to wit: [3]

*Page numbering appearing at the foot of page of original certified Transcript of Record.

[Title of Court and Cause.]

BILL OF COMPLAINT ON LETTERS PATENT No. 1380643

Plaintiffs, complaining of the above named defendant, COMPLAIN and ALLEGE:

I.

That during all the times herein mentioned Plomb Tool Company, one the plaintiffs herein, was and now is a corporation duly created, organized and existing under and by virtue of the laws of the State of Delaware, and is a citizen and resident of the State of Delaware. That plaintiffs Samuel Eagle and John William Langs are citizens and residents of British Columbia and Dominion of Canada.

II.

That during all the times herein mentioned the defendant P. & C. Hand Forged Tool Co. was and now is a corporation duly created, organized and existing under and by virtue of the laws of the State of Oregon, and is a citizen and resident of the State of Oregon.

III.

That this Honorable Court has jurisdiction of the cause of suit herein and the same is a suit in equity arising under the patent laws of the United States and is based upon the infringement by the defendant of Letters Patent No. 1380643 [4] granted on the 7th day of June, 1921, to Samuel Eagle, one of the plaintiffs herein, for an Improvement in Wrenches.

IV.

That on and prior to the 13th day of October, 1920, Samuel Eagle, one of the plaintiffs herein, then and now a citizen of the Dominion of Canada and then a resident of Gilbert Plains, in the Province of Manitoba, in said Dominion of Canada, was the first original and sole inventor or discoverer of a certain new and useful Improvement in Wrenches not known or used by

others in this country before his invention and discovery thereof and not patented or described in any printed publication in this or in any foreign country before his invention or discovery thereof, or more than two (2) years prior to his hereinafter mentioned application for Letters Patent of the United States, and not in public use or on sale in this country for more than two (2) years prior to the date of his said application for said Letters Patent of the United States, and which had not been abandoned, nor patented, nor caused to be patented by him, his representatives or assigns in any country foreign to the United States on an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States as hereinafter mentioned.

V.

That the said Samuel Eagle on or about the 13th day of October, 1920, being then, as aforesaid, the first original and sole inventor or discoverer of said Improvement in Wrenches, duly filed an application for Letters Patent of the United States of America in the Patent Office of the United States disclosing, describing and claiming said [5] invention in accordance with the then existing laws of the United States; that thereafter and on the 7th day of June, 1921, the said Samuel Eagle having fully complied with the requirements of the law in such cases made and provided, there was issued to said Samuel Eagle, his heirs and assigns, Letters Patent of the United States of America, bearing No. 1380643, for said invention, whereby for the term of seventeen years from the said 7th day of June, 1921, there was granted to said Samuel Eagle, his heirs and assigns, the full and exclusive right to make, use and vend said invention throughout the United States and the territories thereof as, by the original of said Letters Patent or a duly certified copy thereof in court to be produced, will more fully appear; that a true and correct

copy of said Letters Patent, omitting drawings, as so issued, is hereto attached marked Exhibit "A" and by this reference thereto made a part hereof.

VI.

That on or about the 20th day of May, 1930, the said Samuel Eagle, one of plaintiffs herein, being the patentee named in said Letters Patent No. 1380643, for a valuable consideration, made and executed a certain exclusive license agreement bearing date as of that day wherein and whereby the said plaintiff, Samuel Eagle, granted unto plaintiff Plomb Tool Company, a Delaware corporation,the sole and exclusive license to manufacture and sell wrenches embodying said patented invention throughout the United States of America and the Dominion of Canada, reserving, however, for the benefit of Diamond Tool Company, a Washington corporation, the right to manufacture and sell for a period of two years from the said 20th day of May, [6] 1930, not to exceed two thousand wrenches per year in the Pacific Northwest of the United States of America; that under and by virtue of the said license agreement the plaintiff, Samuel Eagle, reserved unto himself a royalty for each and every wrench so to be manufactured and sold by the plaintiff, Plomb Tool Company, within said territory, which royalty plaintiff Plomb Tool Company promised and agreed to pay as and when the said wrenches embodying said patented invention were manufactured; that ever since said date plaintiff Plomb Tool Company has been and now is the sole and exclusive licensee of the plaintiff, Samuel Eagle, in and under said Letters Patent, and had and now has the sole and exclusive right to make and vend the said wrenches throughout the United States of America, with the exception of the right reserved for the benefit of said Diamond Tool Company, all as, by the original of said license agreement in court to be produced, will more fully appear.

VII.

That thereafter and on or about the 23rd day of September, 1930 the plaintiff, Samuel Eagle, for a valuable consideration, assigned, transferred and set over unto the plaintiff, John William Langs, his heirs, successors and assigns, an undivided one-half interest in, to and under the said Letters Patent of the United States and in and to such license agreements as had theretofore been executed and granted by the plaintiff, Samuel Eagle, and it was expressly understood and agreed by and between the said plaintiff, Samuel Eagle, and the plaintiff, John William Langs, that the said plaintiff, John William Langs, had an undivided one-half interest in and to said Letters [7] Patent of the United States from the date said Letters Patent were issued to-wit: the 7th day of June, 1921; that the plaintiff, John William Langs by virtue of said assignment during all the times herein mentioned has had and owned and does now have and own an undivided one-half interest in and to the said Letters Patent of the United States and in and to the said license agreement with the plaintiff, Plomb Tool Company, as by the original of said assignment in court to be produced, will more fully appear.

VIII.

That under and by virtue of said Letters Patent and said License agreement and said assignment the plaintiffs are entitled to sue for injunctive relief against any infringement of said Letters Patent and to recover any profits and/or damages arising out of the infringement of said Letters Patent.

IX.

That the said invention is of great utility and value; that the plaintiffs have manufactured and sold and have caused to be manufactured and sold said wrenches embodying said patented invention in large and increasing numbers throughout the United

States; that plaintiffs have expended large sums of money in promoting the manufacture and sale of said wrenches made in accordance with said patented invention; that plaintiffs at all times have been and still are prepared to supply all demands of the general public for said wrenches embodying said patented invention; that defendant and the public generally have been given notice that the wrenches so made and sold are covered and protected by said Letters Patent either by affixing and stamping thereon the word "Patented" together with the day and year said [8] Letters Patent were granted, or, since the 7th day of February, 1927, by affixing and stamping thereon the words and figures, to-wit: "Patent No. 1380643"; that the public has in general acknowledged the validity of said Letters Patent No. 1380643 and has respected plaintiff's rights therein and thereunder.

X.

That as plaintiffs have been informed, believe and therefore allege, the defendant, well knowing the premises but in violation of the exclusive rights of the plaintiffs in and under said Letters Patent and said License agreement, within six years prior to the commencement of this suit, have knowingly infringed and still continue to infringe upon said Letters Patent, within the District of Oregon, and elsewhere within the United States of America by making and vending wrenches embodying said patented invention, and the claims thereof, without license, permission or authority of the plaintiffs; that defendant threatens to continue said infringement; that its infringing acts have the effect of inducing others to infringe upon and against said Letters Patent; that by said infringing acts, defendant has wrongfully converted to itself trade and profits to which the plaintiffs were and are entitled and which the plaintiffs would otherwise have received and enjoyed; whereby plaintiffs have been caused great and irreparable damage and injury and the defendant will,

if it is allowed to continue said infringement, further irreparably injure and damage the plaintiffs.

XI.

That prior to the commencement of this suit, plaintiffs have given actual notice to defendant that defend- [9] ant has infringed and is infringing upon and against said Letters Patent and has demanded of defendant that defendant cease said infringement but the defendant, notwithstanding said notice and demand, continued and does now continue to infringe said Letters Patent.

XII.

That in order to prevent further irreparable damage and injury to the plaintiffs by reason of said infringing acts of the defendant, the defendant, its officers, agents, employees and confederates should be enjoined during the pendency of this suit, and that they and each of them should be perpetually enjoined by the final decree of this court from the further infringement of said Letters Patent.

WHEREFORE, plaintiff prays for a decree of this court, as follows:

1. That said Letters Patent of the United States of America No. 1380643, dated the 7th day of June, 1921, are good and valid and are owned by the plaintiffs, Samuel Eagle and John William Langs, and have been infringed by the defendant;

2. That the defendant, its officers, agents, employees and confederates and each of them be perpetually enjoined by the final decree herein from directly or indirectly manufacturing, using and/or selling and/or causing to be manufactured, used and/or sold, and or/threatening to manufacture, use and/or sell wrenches made according to said invention embodied in said Letters Patent No. 1380643; that a preliminary injunction may be granted the plaintiffs against the defendant during the pen-

dency of this suit to the same purport, tenor and effect as hereinbefore prayed for in [10] regard to said perpetual injunction;

3. That the defendant be decreed to account to the plaintiffs for all gains, profits and advantages realized by the defendant from its said infringement and unlawful manufacture and sale of said wrenches involving said patented invention and that in addition to said gains, profits and advantages so accounted for that the plaintiffs recover from the defendant the damages caused plaintiffs by reason of said infringement and that the plaintiffs have judgment against the defendant for the amount which upon said accounting shall be found to represent said gains, profits and advantages, and said damages, and for plaintiffs' costs and disbursements incurred herein.

4. For such other and further relief as to the court may seem equitable in the premises.

CAKE & CAKE
JAUREGUY & TOOZE
Solicitors for Plaintiff.
LAMAR TOOZE
Of Solicitors for Plaintiff.

[Endorsed]: Filed November 21, 1930. [11]

AND AFTERWARDS, to wit, on the 11th day of December, 1930, there was duly filed in said Court, an Answer in words and figures as follows, to wit: [12]

[Title of Court and Cause.]

ANSWER

The above entitled defendant hereby appears by its attorney, Theodore J. Geisler, and answers the Bill of Complaint herein as follows:

I.

With respect to Paragraph I of the Bill of Complaint:

The defendant is without knowledge as to the matters therein alleged.

II.

With respect to Paragraph II of the Bill:

Defendant admits the allegations therein alleged.

III.

With respect to Paragraph III of the Bill:

Defendant admits that this cause is based on the alleged infringement of letters patent of the United States, but defendant denies that the said alleged patent is valid or that defendant has infringed upon the same. [13]

IV.

With respect to Paragraph IV of the Complaint:

Defendant denies that Samuel Eagle on or prior to October 13, 1920 was the first original, or sole inventor or discoverer of any new and useful improvement in wrenches, not known or used by others in this country before his invention or discovery thereof, or not patented or described in any printed publication in this or in any foreign country before his invention or discovery thereof, or more than two years prior to his application for patent in the Bill alleged, or not in public use or on sale in this country for more than two years prior to the date of said application; but defendant is without knowledge whether said alleged improvement was not abandoned by said Samuel Eagle, or not patented nor caused to be patented by him or his representatives or assigns in any country foreign to the United States, or on an application filed more than twelve months prior to the filing of his said application for letters patent.

V.

With respect to Paragraph V of the Complaint:

Defendant denies that Samuel Eagle at any time was the first, original, or sole inventor or discoverer of any improvement in Wrenches; admits that he filed an application for letters patent of the United States describing and claiming an alleged invention; is without knowledge whether said Samuel Eagle fully or otherwise complied with requirements of the law in such cases made or provided; denies that there was issued to said Samuel Eagle, his heirs, or assigns, any valid letters patent of the United States, but to the contrary the alleged letters patent, No. 1,380,643, referred to in Paragraph V of the Bill, and claimed to be issued for an alleged invention, were and always have been null and void because of the said Samuel Eagle not having invented any of the alleged improvements purported to be described by said alleged [14] letters patent.

Defendant further denies that Exhibit "A" attached to the Bill is a true and correct copy of the letters patent, and states with respect thereto that without the drawings constituting part of and referred to in the specification of said letters patent, the same is wholly incomplete and incomprehensible.

VI.

With respect to Paragraph VI of the Bill:

Defendant is without knowledge as to the matters therein alleged.

VII.

With respect to Paragraph VII of the Bill:

Defendant is without knowledge as to the matters therein alleged.

VIII.

With respect to Paragraph VIII of the Bill:

Defendant denies that under or by virtue of said letters patent or said license agreement, or said assignment, the plain-

tiffs are entitled to sue for injunctive relief against any infringement of the alleged letters patent or to recover any profits or damages arising out of the alleged infringement of said alleged letters patent.

IX.

With respect to Paragraph IX of the Bill:

Defendant denies that the alleged invention is of great or any utility or value; defendant is without knowledge as to whether plaintiffs have manufactured or sold or caused to be manufactured or sold any wrenches embodying said alleged invention; or whether plaintiffs have expended any money in promoting the manufacture or sle of said wrenches; or whether plaintiffs have been or still are prepared to supply all demands of the general public for said wrenches; and defendant is without knowledge as to [15] whether the plaintiffs have fixed or stamped in any manner any notice of the granting of said alleged letters patent upon the said wrenches; and defendant denies that the public has in general or at all, acknowledged the validity of the alleged letters patent or has respected the same as conferring any rights whatsoever therein or thereunder upon the plaintiffs.

X.

With respect to Paragraph X of the Complaint:

Defendant denies that it has been guilty of any violation of any exclusive rights of the plaintiffs, in or under any valid letters patent at any time, or have in any manner infringed, or continue to infringe, upon any letters patent or claims thereof of the plaintiffs at any place; and defendant further denies that it threatens to continue said or any infringement; and defendant further denies that any act committed by it has induced others to infringe upon or against any letters patent of the plaintiffs; defendant further denies that it has been guilty of any acts whereby defendant wrongfully converted to itself trade or profit

to which the plaintiffs were or are entitled, or which the plaintiffs otherwise would have received or enjoyed; and defendant further denies it has caused any damage or injury, or done anything which is liable to cause damage or injury to the plaintiffs whatsoever.

XI.

With respect to Paragraph XI of the Complaint:

Defendant admits that plaintiffs notified it of said alleged letters patent, but again denies that the defendant infringed upon any letters patent of the plaintiffs.

XII.

With respect to Paragraph XII of the Complaint:

Defendant denies that by reason of any act committed or intended to be committed, there is any need for injunctive relief [16] being granted to the plaintiffs in this suit, whatsoever.

And the defendant further answering the Bill of Complaint alleges:

1. That Samuel Eagle was not the original, nor first inventor or discoverer of any material or substantial part of the alleged invention purported to be described in the alleged letters patent herein sued upon.

2. That the alleged new and useful improvement in Wrenches purported to be set forth by said alleged letters patent, No. 1,380,643 herein sued on, was not a patentable invention or discovery in view of the known state of the prior art.

3. Defendant upon information and belief further alleges that the alleged invention or discovery purported to be set forth in said alleged letters patent, and every material part thereof, was well known and used prior to the alleged discovery or invention thereof by said Samuel Eagle; and that devices and combinations embodying and showing substantially the alleged invention are found fully shown by various publications and let-

ters patent issued prior to the alleged discovery or invention of the said Eagle. That defendant is now making due and diligent search for the evidence of such prior knowledge, prior use, and prior publications, and defendant prays that the facts with respect to such prior knowledge, prior use and prior publication as may be ascertained by defendant, may be inserted by it by amendment of this Answer so as to make this Answer more definite and certain in this respect.

WHEREFORE Defendant prays that the Bill of Complaint herein be dismissed, and that it recover its costs and disbursements herein.

P & C HAND FORGED TOOL COMPANY
By: John N. Peterson, President
T. J. GEISLER
Attorney for Defendant.

[Endorsed]: Filed December 11, 1930. [17]

AND AFTERWARDS, to wit, on Monday, the 15th day of May, 1933, the same being the 59th judicial day of the Regular March Term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [18]

[Title of Cause.]

This cause came on for final hearing before the court upon the pleadings and the proofs, the plaintiffs appearing by Mr. Lamar Tooze and Mr. Elmer Ramsey, of counsel, and the defendant appearing by Mr. T. J. Geisler, of counsel. Whereupon the Court being now fully advised in the premises, renders its opinion herein and directs that findings and decree be prepared in accordance therewith [19]

AND AFTERWARDS, to wit, on the 27th day of May, 1933, there was duly filed in said Court, a Motion for Leave to File Petition for Rehearing, in words and figures as follows, to wit: [20]

[Title of Court and Cause.]

MOTION

Come now the plaintiffs and each of them and move the Court for an order granting plaintiffs leave of Court to file a petition for rehearing of the decree of Court entered herein on the 15th day of May, 1933, under the terms of which decree plaintiffs' patent was declared invalid.

CAKE & CAKE
JAUREGUY & TOOZE
W. E. RAMSEY
Of Attorneys for Plaintiffs.

The above motion is predicated upon Equity Rule No. 69 and the procedure as indicated in Moelle v. Sherwood, 148 U. S. 21, 37 L. Ed. 350, and as commented upon in Hopkins' New Federal Equity Rules Annotated, 2nd Edition.

[Endorsed]: Filed May 27, 1933. [21]

AND AFTERWARDS, to wit, on the 29th day of May, 1933, there was duly filed in said Court, Findings of Fact and Conclusions in words and figures as follows, to wit: [22]

[Title of Court and Cause.]

FINDINGS OF FACT AND CONCLUSIONS OF LAW

This cause, brought by the plaintiffs against the defendant for the infringement of letters patent of the United States

granted to Samuel Eagle June 7, 1921, No. 1,380,643, for improvement in Wrench, having been heard and argued by counsel, the Court now, upon consideration thereof, makes the following

FINDINGS OF FACT

1. That the improvement in wrench purported to be described in said patent is sufficiently stated in the single claim thereof, viz:

> "A wrench comprising a handle having a bifurcated shank, a socket support having one end mounted and pivotally secured between the branches of the shank bifurcations and the other end squared, a nut engaging socket having a squared bore adapted to slidably receive the squared end of the socket support therein, and means carried by the handle and engageable with the rounded end of the socket support to hold the latter in different positions."

2. That the patentee Samuel Eagle assigned to John William Langs an undivided one-half interest in his alleged [23] invention and letters patent; that the patentee together with said Langs gave to the Plomb Tool Company an exclusive license to manufacture and sell wrenches embodying said improvement thruout the United States, and the Plomb Tool Company extensively advertised and sold wrenches embodying said improvement.

3. That the file wrapper of said patent cites the following prior art:

Mandeville	348,565	September 7, 1886
Helstrom	1,168,204	January 11, 1916
Miottel	1,169,987	February 1, 1916
Baltzley	1,209,658	December 26, 1916

And furthermore, long prior to Eagle's patent there had grown up the use of wrenches provided with interchangeable standard stockets, such as used in connection with said Eagle wrench.

4. That it appears from said file wrapper that, according to the judgment of the Patent Office, the only difference between said cited prior patents and said purported improvement was that in Eagle's wrench the socket support is adapted to be held in various positions with respect to the handle. That such feature is, however, fully described and shown by the prior patent to J. W. Edmands, No. 820,185, dated May 8, 1906 for Tool, which patent the Patent Office apparently failed to find; at all events, failed to cite, as appears from said file wrapper. And the Court is of the opinion that had the Patent Office found said Edmands patent, it would or should have rejected the application for the patent in suit.

5. That the Patent Office further failed to cite the prior patent to M. J. Fairchild, No. 1,292,285, dated January 21, 1919 for Socket Wrench. That the substance of all elements comprising the alleged combination purported to be described by said Eagle's patent is found in said prior patents; and the assembly of devices and features taken from said prior art into a wrench as described by said Eagle's patent was within the skill of any mechanic versed in the art, and produced only [24] the expected and obvious results attributable to such selection and assembly; and therefore the alleged improvement in Wrench purported to be described and claimed in the patent in suit does not constitute invention.

And the Court finds as its CONCLUSION OF LAW that since the improvement in wrench described and claimed by the patent in suit does not constitute invention, said patent is invalid

and void, and the Bill of Complaint for that reason should be dismissed with costs to the defendant.

May 29th, 1933.

JAMES ALGER FEE
U. S. District Judge.

[Endorsed]: Filed May 29, 1933. [25]

AND AFTERWARDS, to wit on Monday, the 29th day of May, 1933, the same being the 71st judicial day of the Regular March Term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [26]

In the United States District Court for the District of Oregon

Equity No. 9154

SAMUEL EAGLE, JOHN WILLIAM LANGS, and PLOMB TOOL COMPANY,

Plaintiffs

vs.

P & C HAND FORGED TOOL COMPANY, a corporation

Defendant

FINAL DECREE

This cause came on to be heard at this term and was argued by counsel, and thereupon, upon consideration thereof the Court made its findings of fact and conclusion of law and entered the same of record; and thereupon it is now

ORDERED, ADJUDGED and DECREED as follows:

That the alleged improvement purported to be described and claimed in the patent sued on, namely, to Samuel Eagle, No.

1,380,643, dated June 7, 1921 for Wrench, does not constitute invention and that therefore the said patent is invalid and void.

And it is further ORDERED, ADJUDGED and DECREED that the Bill of Complaint be, and the same is hereby dismissed, and that the defendant have and recover its costs and disbursements in this suit amounting to the sum of $101.40 as taxed by the Clerk of this Court.

Dated May 29th, 1933.

JAMES ALGER FEE
U. S. District Judge.

[Endorsed]: Filed May 29, 1933. [27]

AND AFTERWARDS, to wit, on Monday, the 5th day of June, 1933, the same being the 76th judicial day of the Regular March Term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [28]

[Title of Cause.]

Now at this day upon motion of Mr. Lamar Tooze, of counsel for the plaintiffs,

IT IS ORDERED that they be and are hereby allowed to file a petition for rehearing herein. [29]

AND AFTERWARDS, to wit, on the 23rd day of June, 1933, there was duly filed in said Court, a Petition for Rehearing, in words and figures as follows, to wit: [30]

[Title of Court and Cause.]

PETITION FOR REHEARING

Come the plaintiffs and respectfully petition for a rehearing in the above-entitled cause on the ground and for the reasons:

I.

That the Court erred in holding and deciding that the single claim contained in the United States Patent No. 1,380,643, granted June 7, 1921, to Samuel Eagle, which is the patent litigated herein, must be held invalid upon the references cited and upon the examples of the purported prior art submitted by the defendant.

II.

That the Court erred in holding and deciding that the fact that several of the elements set out in said claim are old and that several subcombinations of said element are old, and therefore the single claim of said patent must be construed to have very narrow scope, or to be construed to be of doubtful validity.

III.

That the Court erred in holding and deciding that the Patent Office made a finding that "The socket support of plaintiff's claim with the squared end is equivalent to an element in the [31] Mandeville Patent consisting of a shank provided with a square nut-receiving chamber, and also is equivalent to the element in the Miottel Patent shown as a recessed socket support. In other words the squared male element was held an equivalent of the recessed female element."

IV.

That the Court erred in holding and deciding that the effect of a preliminary action of the Patent Office, which preliminary

action was modified or set aside by a following final or different action, can have any binding or persuasive effect upon this Court in construing said patent.

V.

That the Court erred in holding and deciding that the final statement of the applicant, who was later the patentee of the patent involved in this litigation, did not succinctly point out the exact patentable features involved in his patented invention, namely:

> "The two claims now presented for consideration are thought to be allowable, inasmuch as none of the references show a socket support in the form of a solid body having one end pivotally secured to the handle, and the other end adapted to be slidably received in the bore of the nut engaging socket." With this construction applicant needs no fastening means for holding the socket support and the socket together, depending merely upon the frictional engagement between the parts.
>
> "The references also fail to disclose a socket support or a socket assembled together and held against relative pivotal movement, the socket support being pivotally secured onto the handle and adapted to be held at various positions with respect thereto."

It is to be noted that the underlining is not included in the citation but is added for the purpose of emphasis in this petition.

VI.

That the Court erred in holding and deciding that the Edmands Patent, which was not cited as a reference by the

Patent [32] Office but was cited by defendant as a purported example of the prior art, shows any feature or element not shown in the references cited by the examiner, or that defendant contends that said Edmands Patent shows any feature or element not thus shown; that is, that said patent cited by defendant is a disclosure of anything not shown in the references relied upon by the examiner when acting upon the Eagle application.

VII.

That the Court erred in holding and deciding that the specific feature "The Edmands patent has the same features except that the socket support and the socket itself are in one piece and are adapted to be removed from the pivot pin when the eye is opposite to one edge of the lug," underlining not being present in the Court's opinion but being included in this petition for the purpose of emphasis, does not constitute that quality of invention to lend patentability to plaintiff's advancement in the art to which said patent is directed.

VIII.

That the Court erred in holding and deciding that the fact that in some operations or uses of the two wrenches, namely the Eagle wrench and the Edmands wrench, which are being compared, are similar, is not controlling because there are other new results not attainable by the use of the Edmands wrench, these results being

1. The Eagle wrench is adapted to accommodate a number of wrench sizes and said accommodation is permitted by the use of standard sockets, which are removable from their socket supports, while in the Edmands wrench said accommodation is possible only by the use of a number of integral wrench heads, each

of which wrench heads will drop off in one position, and thus the Edmands wrench is not a one-handed wrench for the reason that one hand must be used in said position to hold said wrench head in place [33] upon its handle; that if the eye of a particular wrench head is closed to make it pivotally secured to the handle, it is not capable of being removed for the purpose of substitution, which is the principal purpose of the Edmands invention and which is the only purpose which would tend to give it any commercial value whatsoever.

2. The Edmands wrench is not adapted to accommodate standard sockets, but said wrench heads being integral structures must necessarily command a higher price and involve special manufacturing tools and processes.

IX.

That the Court erred in holding and deciding that the widespread use of standard sockets followed the date of the Edmands patent in 1906 rather than preceded it.

X.

The Court erred in holding and deciding that the steps taken by the patentee Eagle were apparent and were the result of a need sprung up and which was easily and quickly solved, said holding decision being contrary to the undisputed testimony that the Plomb Tool Company, one of the plaintiffs, spent years in attempting to solve this problem and the witness Carlborg who was in the employ of the defendant corporation at the inception of the infringing manufacture and sale complained of in the complaint, could not duplicate the Eagle wrench even after it had been illustrated to him.

Plaintiffs further petition the Court to permit said petition to be heard and supported by oral argument.

Respectfully submitted,
CAKE & CAKE
JAUREGUY & TOOZE
W. E. RAMSEY
Attorneys for Plaintiffs.

[Endorsed]: Filed June 23, 1933. [34]

AND AFTERWARDS, to wit, on Monday, the 7th day of August, 1933, the same being the 29th judicial day of the Regular July Term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [35]

[Title of Cause.]

This cause was heard by the court upon the petition of the plaintiffs for a re-hearing and upon the objections of the plaintiffs to the cost bill filed by the defendant herein, and was argued by Mr. W. E. Ramsey, of counsel for the plaintiffs and by Mr. T. J. Geisler, of counsel for the defendant. Upon consideration whereof,

IT IS ORDERED that the petition for a re-hearing be and the same is hereby denied, and that the objections to the cost bill be and the same are hereby overruled, except the item of $18.00 for the cost of making models which is disallowed. [36]

AND AFTERWARDS, to wit, on the 6th day of November, 1933, there was duly filed in said Court, a Petition for Appeal, in words and figures as follows, to wit: [37]

[Title of Court and Cause.]

PETITION ON APPEAL.

The above named Samuel Eagle, John William Langs and Plomb Tool Company, the latter being a corporation, conceiving themselves aggrieved by the decree made and entered in the above entitled cause on the 29th day of May, 1933, and adhered to in the order denying the petition for re-hearing thereon, made and entered herein on the 7th day of August, 1933, whereby this court did adjudge and decree that claim one of the letters patent of The United States granted to Samuel Eagle June 7, 1921, number 1,380,643, for an improvement in Wrenches and assigned in part to the plaintiff John William Langs and subject to an exclusive license to the plaintiff Plomb Tool Company, a corporation, did not involve invention and that the said claim is void; said decree furthermore dismissing the bill of complaint herein with costs to the defendant, therefore, the plaintiffs and each of them do hereby appeal from said decree and each and every part thereof and from the order denying a rehearing thereof, for the reasons set forth in the assignments of error filed herewith, to The United States Circuit Court of Appeals for the Ninth Circuit, and pray that this appeal may be allowed, that a citation be issued directed to the above named defendant, P & C Hand Forged Tool Company, a corporation, commanding it to appear before the United States Circuit Court of Appeals for the Ninth Circuit to do and receive what may appertain [38] to justice to be done in the premises, and that a transcript of the record, proceedings and papers upon which said decree and order were made, duly authenticated, be sent to said Circuit

Court of Appeals for the Ninth Circuit together with the exhibits in this case.

Dated this 4th day of November, 1933.

WM. M. CAKE of
CAKE & CAKE
LAMAR TOOZE of
JAUREGUY & TOOZE
W. E. RAMSEY
Solicitors for Plaintiffs.

Service of the above and receipt of a copy thereof duly certified to be a correct copy by Lamar Tooze, of solicitors for plaintiffs is hereby admitted this 6th day of November, 1933.

T. J. GEISLER
Solicitor for Defendant.

[Endorsed]: Filed November 6, 1933. [39]

AND AFTERWARDS, to wit, on the 6th day of November, 1933, there was duly filed in said Court, an Assignment of Errors, in words and figures as follows, to wit: [40]

[Title of Court and Cause.]

ASSIGNMENTS OF ERROR

Come now the above named plaintiffs, Samuel Eagle, John William Langs, and Plomb Tool Company, a corporation, and each of them, by their solicitors, and say that the decree heretofore rendered in the above entitled cause on the 29th day of May, 1933 and the order entered on the 7th day of August, 1933, denying plaintiffs' petition for rehearing, respectively are erroneous and against the just rights of said plaintiffs for the following reasons:

I.

Because the District Court adjudged and decreed that the improvement described and claimed in claim one in the letters patent of the United States granted to Samuel Eagle June 7, 1921, number 1,380,643, for an improvement in Wrenches, and in which patent plaintiff John William Langs holds an undivided interest and in which patent the Plomb Tool Company holds an exclusive license, did not involve invention and that said claim is invalid and void.

II.

Because the District Court failed and refused to adjudge and decree that said Samuel Eagle invented a new, useful and patentable improvement in Wrenches, duly defined and claimed in said claim one of said letters patent. [41]

III.

Because the District Court erred in not adjudging and decreeing that said claim of said letters patent is valid, that the defendant infringed the same, and that the plaintiffs in their respective relations under said letters patent are entitled to relief from said infringement as prayed for in the bill herein.

IV.

Because the said decree of the District Court is in prejudice of the substantial rights and equities of the Plaintiffs in the premises.

Dated November 4th, 1933.

CAKE & CAKE
JAUREGUY & TOOZE
W. ELMER RAMSEY
Solicitors for Plaintiffs.

[Endorsed]: Filed November 6, 1933. [42]

AND AFTERWARDS, to wit, on Monday, the 6th day of November, 1933, the same being the 1st judicial day of the Regular November Term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [43]

[Title of Court and Cause.]

ORDER ALLOWING APPEAL.

On motion of solicitors for the above named plaintiffs, it is ORDERED, that the appeal presented by the plaintiffs herein be and hereby is allowed to the United States Circuit Court of Appeals for the Ninth Circuit from the final decree entered in the above entitled case on the 29th day of May, 1933, and the order made and entered herein on the 7th day of August, 1933 denying plaintiffs a rehearing with respect to the decree of this Court entered on the 29th day of May, 1933, decreeing that the single claim of the patent sued upon is void and dismissing the bill of complaint; and it is ordered that a transcript of the record proceedings and papers upon which said decrees were made, duly authenticated, and the exhibits submitted in said cause be transmitted to the United States Circuit Court of Appeals for the Ninth Circuit in accordance with the rules of practice.

It is further ORDERED that the plaintiffs file a bond to be approved by this Court in the sum of $500.00 to answer all costs which may be adjudged or awarded against plaintiffs, or any of them, if they shall fail to prosecute their appeal to effect, and shall fail to sustain their appeal.

It is further ORDERED that a citation be issued admonishing the defendant to be and appear in the United States Circuit

Court [44] of Appeals for the Ninth Circuit within thirty (30) days from the date of said citation.

Dated this sixth day of November, 1933.

JAMES ALGER FEE
U. S. District Judge.

[Endorsed]: Filed November 6, 1933 [45]

AND AFTERWARDS, to wit, on the 5th day of December, 1933, there was duly filed in said Court, a Bond on Appeal, in words and figures as follows, to wit: [46]

[Title of Court and Cause.]

BOND ON APPEAL.

KNOW ALL MEN BY THESE PRESENTS that we, Samuel Eagle, John William Langs and Plomb Tool Company, a corporation, as principals, and AMERICAN SURETY COMPANY OF NEW YORK as surety, are held and firmly bound unto the above-named defendant P & C Hand Forged Tool Company, a corporation, in the full and just sum of Five Hundred Dollars ($500.00), to be paid to the said P & C Hand Forged Tool Company, a corporation, its attorneys, executors, administrators, or assigns; to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, jointly and severally by these presents.

Signed with our seals and dated this 4th day of December, 1933.

WHEREAS, lately at a District Court of the United States for the District of Oregon in a suit pending in said Court between Samuel Eagle, John William Langs, and Plomb Tool

Company, a corporation, as plaintiffs, and P & C Hand Forged Tool Company, a corporation, as defendant, a decree was rendered against the said plaintiffs and each of them and the said plaintiffs having obtained an appeal and filed a notice and secured an order allowing said appeal, and a citation directed to said P & C Hand Forged Tool Company, a corporation, citing and admonishing it to be and appear at a session of the [47] United States District Court of Appeals for the Ninth Circuit to be holden at the City of San Francisco, California, in said Circuit within thirty days from the 6th day of November, 1933.

Now, the condition of the above obligation is such that if the said plaintiffs, Samuel Eagle, John William Langs, and Plomb Tool Company, a corporation, shall prosecute their appeal to effect, and answer all damages and costs if they fail to make their plea good, then the above obligation is to be void; else said obligation is to remain in full force and virtue.

SAMUEL EAGLE
JOHN WILLIAM LANGS
By Stewart S. Tufts
his attorney in fact
PLOMB TOOL COMPANY
By W. M. Cake, its attorney,
Principals.

AMERICAN SURETY COMPANY
OF NEW YORK
By W. A. King
Resident Vice President
Surety.

Attest:
T. GRAHAM
Resident Asst. Secretary
W. A. KING
Resident Agent

Sealed and delivered in the presence of:
HALBERT MENYUS
As to execution by
EAGLE and TUFTS
at attorney for Langs

The foregoing bond on appeal is hereby approved this 5th day of December, 1933.

JAMES ALGER FEE
U. S. District Judge.

[Endorsed]: Filed December 5, 1933. [48]

AND AFTERWARDS, to wit, on the 16th day of February, 1934, there was duly filed in said Court, a Statement of the Evidence in words and figures as follows, to wit: [49]

[Title of Court and Cause.]

STIPULATION AND ORDER.

In the following Statement of Evidence, certain portions are set forth in full, that is, not stated in narrative form. The parties hereto desire that said testimony shall be set forth in full in said statement of evidence, inasmuch as said testimony is expert testimony or quasi-expert testimony, statements of Court or counsel made at the time of trial, and the exact words are deemed essential to obtain a correct understanding of the testimony, objections and rulings with relation thereto, and the portions set

out in full are believed to be matters specifically excepted by Equity Rule 75, as amended.

CAKE & CAKE
JAUREGUY & TOOZE
W. E. RAMSEY
Attorneys for Plaintiffs.
T. J. GEISLER
Attorney for Defendant.

The portions of the evidence set forth in full and referred to in the above statement are incorporated in the Statement of Evidence by the direction of Court.

JAMES ALGER FEE
District Judge. [50]

[Title of Court and Cause.]

STATEMENT OF EVIDENCE.

At the trial of the cause, a stipulation between the parties referring to certain issues made by the pleadings and matters of proof was offered and received in evidence and marked Plaintiffs' Exhibit 1. Plaintiff introduced the Eagle Patent (Plaintiffs' Exhibit 2), the original license agreement with Plomb Tool Company (Plaintiffs' Exhibit 3) and the assignment to plaintiff Langs (Plaintiffs' Exhibit 4).

The Plaintiff

SAMUEL EAGLE

was called as a witness on behalf of the Plaintiffs. Said witness testified that he is the Plaintiff and is the patentee of United States Patent No. 1,380,643 entitled Wrenches. He identified the patent, the license and assignment previously introduced as exhibits. He was handed one of the wrenches manufactured by the Plaintiff Plomb Tool Company (Plaintiffs' Exhibit 5)

PLAINTIFF'S EXHIBIT 2.

Filed July 11, 1932.
G. H. Marsh, Clerk.

S. EAGLE.

WRENCH.

APPLICATION FILED OCT. 13, 1920.

1,380,643.

Patented June 7, 1921.

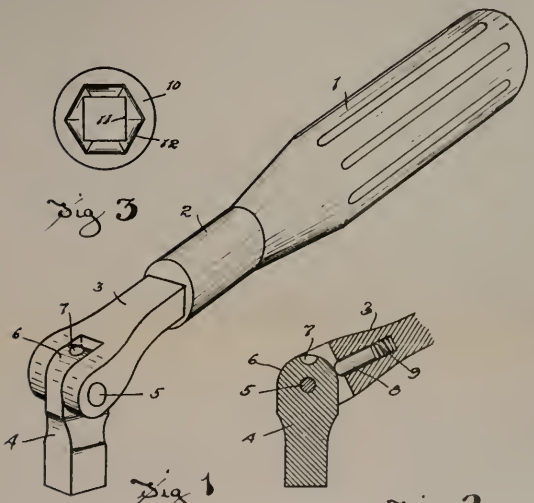
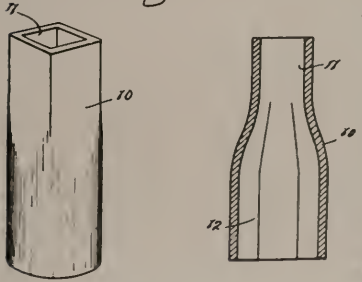


Fig 3

Fig 1

Fig 2



INVENTOR

S. Eagle

BY

ATTYS

UNITED STATES PATENT OFFICE.

SAMUEL EAGLE, OF GILBERT PLAINS, MANITOBA, CANADA.

WRENCH.

1,380,643. Specification of Letters Patent. Patented June 7, 1921.

Application filed October 13, 1920. Serial No. 416,731.

To all whom it may concern:

Be it known that I, SAMUEL EAGLE, of the town of Gilbert Plains, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Wrenches, of which the following is the specification.

The invention relates to improvements in wrenches and particularly to socket wrenches and the principal object of the invention is to provide a simply constructed and inexpensive and durable wrench which can be easily and quickly attached to the usual socket and is arranged so that the handle can be brought to a position axially alined with the socket or swung sidewise as occasion demands.

A further object is to arrange the wrench so that the handle can be releasably locked in its axial position.

With the above objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claim, reference being had to the accompanying drawing in which:—

Figure 1 is a perspective view of the complete wrench showing the head situated above the socket.

Fig. 2 is a sectional view through the head end of the wrench and also through the socket.

Fig. 3 is an inverted plan view of the socket.

In the drawing like characters of reference indicate corresponding parts in the several figures.

1 is the handle of the wrench which is suitably shaped for gripping purposes. One end of the handle is decreased in diameter as indicated at 2, and to this end I secure in any suitable manner a fixed shank 3, which has the forward end bifurcated or forked to receive the upper end of the head 4 which is pivotally fastened to the shank by a cross pin 5 passing through the forks.

The head has the lower end square in horizontal section and the upper end of the head is semi-circular as indicated at 6 and is provided at the top with a depression or indent 7 which is adapted to receive a catch 8 slidably mounted in the shank and normally pressed toward the head by the action of an inserted spring 9.

This latter arrangement is such that when the handle 1 is swung into a position axially alined with the head the projecting end of the catch will enter the indent and have a tendency to lock the parts so positioned. The end of the catch is rounded so that upon pressure being brought on the handle the catch can be sprung out of the indent to release it to swing sidewise.

This tool is especially provided for use with wrench sockets 10 which have their upper ends squared as indicated at 11 to receive the square end of the head and their lower ends shaped to fit a nut. I might here state that this socket varies in practice depending upon the work and may have a hexagonal opening such as shown at 12 or any other sided opening depending on the type of nut on which it is to be used.

A tool of this kind is particularly useful where one has to get under a machine to do the work, such as under an automobile. After having placed the socket on a nut one enters the head 4 in the socket with the handle straight and then by swinging the handle to the side can get considerable leverage to undo the nut.

In using the tool to start a nut the handle is brought to a position such that it is axially alined with the socket and then by turning the handle around by a rolling action between the hands, the work can be easily accomplished.

What I claim as my invention is:—

A wrench comprising a handle having a bifurcated shank, a socket support having one end mounted and pivotally secured between the branches of the shank bifurcations and the other end squared, a nut engaging socket having a squared bore adapted to slidably receive the squared end of the socket support therein, and means carried by the handle and engageable with the rounded end of the socket support to hold the latter in different positions.

Signed at Winnipeg, this 23rd day of September, 1920.

SAMUEL EAGLE.

In the presence of—
GERALD S. ROXBURGH,
K. B. WAKEFIELD.

(Testimony of Samuel Eagle.)

and also a wrench manufactured by the Defendant (Plaintiffs' Exhibit 6). He read the single claim contained in said patent and pointed out each of the elements set out in said claim with respect to Plaintiffs' Exhibits 5 and 6. Mr. Eagle testified that he manufactured 1,000 wrenches in 1920, and a few in 1921, and that said wrenches were scattered [51] over as wide a sales area as he could to advertise the same. A good many of said wrenches were sent to Toronto to be exhibited in the Toronto Automotive Equipment Show in Toronto in 1921. Others were sent to Winnipeg to be exhibited in the Automotive Equipment Show in 1921-22. A few were sold here and there through the West and thru the prairie provinces, some in Lethbridge, and whenever he could get a chance he sold one in The United States. At that time he was a resident of Gilbert Plains, Manitoba, Canada. He later moved to Lethbridge, Canada and to Revelstoke, Canada, and then to Haney, Canada and now lives in Ladner, Canada, of which city he is a resident and was at the time this suit was brought. Two of the wrenches sold in the United States during this period were sold to a man from Minneapolis, another one was sold to a Salt Lake City man, and samples were sent to different tool firms in the United States; namely, the Black Hawk Tool Company and the Snap-on Tool Company and some of said wrenches previously described were sold in the United States.

It was conceded by the Defendant that it had received proper legal notice of infringement prior to suit.

Upon Cross-examination

said witness Samuel Eagle testified that the wrench manufactured by the Plomb Tool Company (Plaintiffs' Exhibit 5) has a spring-controlled ball on one side of the socket support to keep

(Testimony of Samuel Eagle.)
the socket from slipping off of said socket support while the wrench illustrated in his patent does not have this feature and it is necessary to keep the socket from dropping off [52] in certain positions. Said witness further testified that the patent illustrated a spring-pressed pin for holding the socket support in various positions with relation to the handle, and he did not know whether the Defendant's wrench (Plaintiffs' Exhibit 6) had a spring-pressed ball for this purpose or not. His attention was called to a cut-away wrench (Defendant's Exhibit O), but said witness was unable to state whether Defendant manufactured a wrench identical to the cut-away portions of said exhibit or not.

On behalf of Plaintiffs,

M. B. PENDLETON,

general manager of the Plaintiff Plomb Tool Company, was called as a witness. He testified that his experience with tools commenced with his employment by the Plomb Tool Company in 1918 and that he had worked for said Company continuously ever since, beginning in the production department and working through the various departments of the business and in 1922 was made general manager of said Company; that he was familiar with the patent in suit and had examined said patent. The plaintiff Plomb Tool Company has manufactured between thirty-three and thirty-four thousand wrenches embodying the features of the Eagle patent.

"Q. Are you familiar with the wrenches which the Eagle patented wrench has displaced in use? [53]

(Testimony of M. B. Pendleton.)

"A. Yes. In the early days of my manufacturing experience we customarily manufactured for the garage trade, garage mechanics use, various types of solid handled wrenches, such as the L-wrench, the T-wrench, the solid speed handled wrench, and wrenches having various bends and shapes to get around natural obstructions in the repairing of an automobile.

"Q. Prior to your starting manufacture of the Eagle wrench, these wrenches took care of all the needs of the automobile mechanic, is that true?

"A. Yes, those were the wrenches that were necessary to perform the work that an automobile mechanic was required to do, and we made a very large number of these wrenches in various shapes and sizes; obviously every handle had its own socket as a part thereof, and there were a great many of the solid handled wrenches required to perform the work.

"Q. You say each handle had its own socket?

"A. As manufactured by us, they were all one-piece tools, with whatever shaped handle the case required, and with this opening attached thereto, to the solid piece.

"Q. Did you or did you not manufacture handles which were adapted to be used with sockets?

"A. Yes, we also manufactured handles to be used with sockets, and which were separate, yet the handles themselves had to follow the same general shape as did the original solid wrenches with handle and socket all in one.

"Q. When you speak of a T-wrench and an L-wrench you speak of the shape of the handle as they resemble a capital letter "L" or a capital letter "T".

"Yes.

(Testimony of M. B. Pendleton.)

"Q. In your present manufacturing program what percentage of wrenches manufactured are of the Eagle type, and what percentage are of the fixed handle type?

"A. In reference to the handle in particular, the sockets being common to both, we are manufacturing more wrenches of the Eagle type than we are all of the other handles put together, and the acceptance of the Eagle type wrench by our trade has rendered obsolete a great quantity of the solid type wrenches referred to above. [54]

"Q. Do you know whether your experience as a manufacturer is the experience of other manufacturers, competitive manufacturers? Just answer yes or no.

"A. Yes."

There are approximately sixteen other manufacturers competitive to the Plomb Tool Company making wrenches of both Eagle and other types, and this witness estimated that the annual manufactured volume of Eagle type wrenches would run somewhere in the neighborhood of 125,000 wrenches per year and that if the experience of other manufacturers is anything like the experience of Plomb Tool Company, that would be half of the wrench handle business offered to the automobile mechanic trade. This witness then explained why the Eagle type wrench has displaced the other type of wrenches as follows:

"A. The reason that the Eagle type of wrench has displaced the various types of solid handled wrenches, is because a mechanic with one Eagle type handle can perform most if not practically all of the jobs and operations which the other solid type handles perform, and obviously a mechanic will gladly buy one handle having a wide and varied use, rather than buy a collection of other type handles

(Testimony of M. B. Pendleton.)

which involves expense and inconvenience and duplication."

The witness was then asked if he knew what number of special type wrenches was used prior to the introduction of the Eagle wrench and which the Eagle wrench displaced. This witness answered:

"A. Answering for our own company, we manufactured before we started the Eagle type wrench a volume of approximately equal to the volume of wrenches of the solid type that we are making today at the present time, and that volume has continued and particularly since we have conducted an active advertising campaign the Eagle type wrench has very much outstripped the sales of any other.

"Q. When you speak of the others, how many different types are there? [55]

"A. The other type handles, using that term differentiating from the Eagle type, comprise mostly L-handles, T-handles and speed handles, and another group which we call special purpose tools, which have a variety of bends to get around obstructions, and it was in those days the only way we knew how to make a wrench that the mechanic could perform certain jobs with.

"Q. Would a mechanic's kit, or would it not, contain one of each of these types of wrenches?

"A. Formerly, yes.

"Q. At the present time what is the condition?

"A. At the present time the minimum requirements that a mechanic can get along with would be sockets of the various openings his work would require, plus a flexible handle of the Eagle type, plus possibly a ratchet."

He further said that solid type wrenches include T-wrenches, L-wrenches and speed wrenches and also include a class of spe-

(Testimony of M. B. Pendleton.)

cial-purpose wrenches with various peculiar shapes for the jobs required. On cross-examination he further testified there is a wrench known to the trade as the universal wrench, which is a common wrench and moves in all directions for the purpose of turning a nut, the axis of which is arranged at an angle to the axis upon which the handle of the wrench is turned. He was then asked whether the universal wrench functioned in some cases the same as an Eagle wrench, such, for example, as getting at an out-of-the-way nut. His answer was:

> "A. No. You misunderstand my answer. The universal wrench—or when a universal wrench is used, the axis around which the handle of the universal wrench rotates, is at an angle to the axis of the bolt on which the nut revolves. The two operations are entirely separate. To illustrate: The axis of the handle of the universal wrench is turning in this manner, whereas the axis of the bolt on which the nut turns, is vertical, and that work cannot be performed by an Eagle Type wrench." [56]

He testified that one could not use the Eagle wrench for the same purpose that he could use the universal wrench, because the Eagle wrench moves in one plane only; that the universal wrench was in use some time prior to the knowledge of the Eagle patent and that the universal principle is many, many years older; that the universal wrench embodied two pivoted pieces to one of which a socket might be fastened, but that there was an intermediate movable piece to which a socket cannot be fastened.

The witness then testified that the special operating features of the Eagle wrench were that:

> "A. The special features of the Eagle wrench comprise the simplest, most inexpensive to manufacture, least trouble

(Testimony of M. B. Pendleton.)

type of flexhandled wrench that has yet been conceived, and it makes possible the use of the handle in connection with sockets common to the automobile industry.

"Q. Referring to Plaintiff's Exhibit 5, do you not consider the special feature in that wrench the fact that that part of the end of it pivoted to the handle, marked "4" in the patent, may be moved on its pivot laterally?

"A. Yes, that is an important feature, provided this part corresponding to "4" in the patent is pivotally secured to the handle in this manner.

"Q. Yes, that is what I mean. That is one of the important features then, it is pivotally secured to the handle. Is not another important feature the fact that there is a friction pin which holds that socket support (4) in different positions?

"A. Yes, it is also important that that friction device here in the handle will hold the part (4) in the patent in any one of the unnumerable number of positions.

"Q. Now you do not consider it important that the element (4) is made like a male connector. In other words it could just as well have a socket in place of a male connector there, couldn't it?

"A. No, because the utility of the wrench for the purpose for which it is intended, that is, a tool for garage mechanics, would be materially reduced, and the utility of it would be materially reduced if this had a female connector.

"Q. A female connector? [57]

"A. A female socket on the end.

"Q. Your idea is, if we substitute for that male connec-

(Testimony of M. B. Pendleton.)

tor there a female connector, then the value of that wrench would be materially nullified. Is that it?

"A. Materially reduced, yes.

"Q. You consider an important feature in plain mechanics to change a piece from a male connector to a female connector in regard to a wrench?

"A. As far as the Eagle patent is concerned, to change this male connector to a female connector would materially reduce the utility."

Mr. Pendleton then testified that the Plomb Tool Company had approximately sixteen competitors in the field at the present time, but that the Plomb Tool Company was one of the first to manufacture the Eagle type wrench, and since Plomb Tool Company had advertised the Eagle type of wrench extensively, quite a number of other manufacturers have also joined the field and manufacture this type of wrench in one way or another, and that said wrenches thus manufactured have been competitive to the Plomb Tool Company's product. Since starting manufacture of said Eagle type wrenches, said Plomb Tool Company has manufactured from 33,000 to 34,000 wrenches and that said Plomb Tool Company has spent between $10,000 and $12,000 in exploiting said wrench; that they have salesmen scattered throughout the United States and for strictly printed advertising in which this wrench is featured it spent between $1,500 and $2,000 per year, especially during the years 1930-31.

Mr. Pendleton testified on

Re-direct

and in answer to counsel's request that he differentiate the operating field or function of the flexhandle wrench which is described in the Eagle patent, the universal type wrench, and the

(Testimony of M. B. Pendleton.)

ratchet wrench. The witness testified that a universal type wrench is used for [58] driving a nut onto a bolt where the axis of the bolt is arranged at an oblique angle to the axis of the handle, but that this operation could not be performed with a flexhandle or Eagle type wrench. He summarized his reasons as follows:

> "A. And in the flexhandled wrench, the driving of the nut in a clockwise direction, the handle has to make a complete circuit, and does not revolve about itself as in the case of the Universal wrench. The angle at which the handle is to vertical is immaterial, for the handle can revolve clear around the nut, or the flexhandled wrench may be put in a vertical position and turn between your hands in this manner, also revolving the nut. Now in the case of the ratchet wrench."

Plaintiffs' counsel summarized the physical demonstration by stating:

> "Q. May I make an explanation for the purpose of the record, of the technical terms, so the record will speak the demonstration which the plaintiff made, that in operating the flexhandle wrench the nut is rotated about an axis while one end of the wrench is fastend and makes a revolution about the same axis, being fastened to one end adjacent to the axis, and the other end being free. In the use of the universal wrench the handle and the socket both revolve about axes, which axes make an oblique angle with respect to each other, this being the demonstration which the witness has made."

The witness stated that that is what he meant.

Plaintiffs' counsel then summarized the common use of the

(Testimony of M. B. Pendleton.)

ratchet wrench in the garage mechanic trade by stating that the wrench itself is moved about the socket or the nut and then reversed and another bite taken. The ratchet wrench is specifically employed where the handle must move thru a very small sector, the apex of which is the nut itself, and the handle describes a very small arc and moves back and forth, and said witness Pendleton testified that the function of said wrench was to tighten or loosen the nut as the case may be.

The witness testified that these wrenches can not be used interchangeably but each has its own specific usefulness, each functioning in its own field, and in most instances said [59] uses or functions do not overlap.

"Q. Now counsel asked you about the male service end, or the female service end of the Eagle wrench, and your answer was you felt that placing the female end would greatly reduce the use of it. Will you please explain in greater detail why this is so?

"A. It would materially reduce the utility of the wrench to have a female end on this wrench, because that would require an adapter or some other joint to again reduce the female end to a male end so that mechanics generally who are equipped with sockets of which there is a universal use would then have a male connector to put in.

"A. In the absence of an adapter a flexhandle wrench with simply a female opening would necessitate as many flexhandle wrenches or as many size female openings as you have nuts on which you have to work, and you would then get back to the old solid handle type, which means separate wrench for separate nut size."

(Testimony of M. B. Pendleton.)

Upon

Re-cross Examination

said witness Pendleton testified that it might be a mechanical choice for convenience of operation to make the moveable piece 4, which is the socket support of the Eagle wrench, either male or female, but that to make said socket as a female connection would be a very impractical expedient. The witness was asked:

"Q. Substituting one for the other is merely a mechanical selection?

Mr. RAMSEY: I object to that question on the same ground I objected before. He is attempting to question this witness as an expert on patents; mechanical selection or mechanical choice and equivalents, are technical questions, and not one for which this witness is qualified.

COURT: Objection sustained. I think the former question was not this one."

Plaintiffs then closed their case in chief. [60]

The defendant having previously given seasonable notice of the prior art offered, and there was received, in evidence the following patents:

Patent to Mandeville No. 348565, dated September 7, 1886, on combination tool, marked Defendant's Exhibit "C";

Patent to Edmands No. 820185, granted May 8, 1906, marked Defendant's Exhibit "D";

Patent to Miller No. 952435, dated March 15, 1910, marked Defendant's Exhibit "E";

Patent to Helstrom No. 1168204, dated January 11, 1916, marked Defendant's Exhibit "F";

I. J. MANDEVILLE

Combination Tool

No. 348,565 Sept. 7, 1886

DEFENDANT'S EXHIBIT "C"

Filed July 11, 1932.
G. H. Marsh, Clerk.

(No Model.)

I. J. MANDEVILLE.

COMBINATION TOOL.

No. 348,565. Patented Sept. 7, 1886.

Fig. 1.

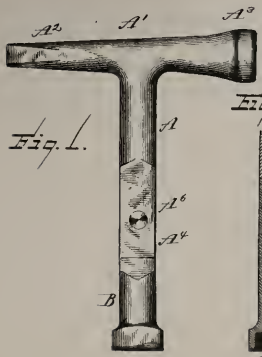
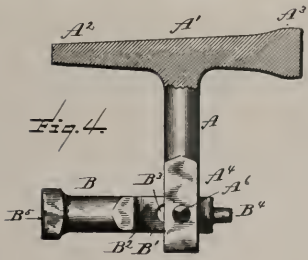


Fig. 2.

Fig. 3.

Fig. 4.



Witnesses
L. C. Mills.
W. S. Dewall

Inventor
Ira J. Mandeville,
By his Attorney
E. B. Stocking

UNITED STATES PATENT OFFICE.

IRA J. MANDEVILLE, OF HAZLETON, PENNSYLVANIA

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 348,565, dated September 7, 1886

Application filed April 26, 1886. Serial No. 200,118. (No model.)

To all whom it may concern:

Be it known that I, IRA J. MANDEVILLE, a citizen of the United States, residing at Hazleton, in the county of Luzerne, State of Pennsylvania, have invented certain new and useful Improvements in Combination-Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a combined socket-wrench, hammer, and screw-driver, and my object is to provide a tool especially adapted for the use of stove assemblers and repairers that shall be light, cheap, easy of manufacture, and convenient; and the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a combined tool constructed in accordance with my invention. Fig. 2 is a longitudinal section of a part of the same; and Fig. 3 is a like view, the section being taken at a right angle to that in Fig. 2. Fig. 4 is a side elevation, the wrench portion being shown in an open position.

Like letters indicate like parts in all the figures of the drawings.

A represents the body portion of my tool, which is formed with a T-head or handle portion, A', one extremity of which is formed in the shape of a screw driver, A², and the opposite extremity is enlarged, forming a hammer-head, A³. The lower end of the body portion A is bifurcated, as at A', and formed with a socket, A⁵. A wrench portion, B, is adapted to be received between the bifurcations A' of the body portion by being cut away to form a shank, B', and shoulder B². The shank may be, if desired, slightly wedge-shaped to be more firmly seated when forced up between the bifurcations A'. The shank is provided with an elongated slot, B³, through which and the bifurcations A' a pin or rivet, A⁴, passes. The top of the shank is formed with a lug, B⁴, adapted to enter the socket A⁵ in the handle, thus holding the wrench portion rigidly in the handle when used as a straight socket-wrench. The lower end of the wrench portion B is enlarged and provided with a square nut-receiving chamber or recess, B⁵, and a cylindrical socket, B⁶, for receiving the screw threaded end of the bolt. Now, taking the tool in the position shown in Fig. 1, it is plain that it may be either used as a screw driver, a hammer, or a straight socket-wrench and by drawing the wrench portion B down from without the bifurcations A' and turning it one side or the other a wrench is formed for the purpose of getting at nuts up under flanges and other inconvenient places. To again close the wrench and put it in position for use as a hammer, screw driver, or straight socket-wrench, it is only necessary to swing the wrench portion B down in line with the body portion and push it up into the bifurcations of said handle, the lug B⁴ entering the socket A⁵ therein.

The tool is especially adapted for stove workmen or repairers, as by the different positions the wrench can be caused to assume and the combination of parts it will be found convenient in many instances where ordinary tools would be awkward; but I do not limit the use of the invention to any particular art. If desired, the lug B⁴ may be formed and used as an ordinary punch for perforating sheet metal or for heading rivets, the blows being applied upon the wrench end B⁵.

From the above description it will be seen that the tool may be either cast or wrought, as desired, and will be ready for use without any particular finishing of the parts thereof.

Having described my invention and its operation, what I claim is—

1. A combination tool comprising a hammer head and a screw-driver at one end and a socket-wrench at the other end, and a connecting-handle formed of two sections pivoted to each other, whereby the handle may be disposed so as to present the socket wrench at various angles to the handle, substantially as specified.

2. A combination-tool consisting of the hammer-head A³, screw driver A², and fixed bifurcated handle-section A, and a movable handle-section, B, having the socket wrench B⁵, slot, B³, and lug B⁴, whereby the socket-wrench may be secured in line with the fixed section of the handle, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

IRA J. MANDEVILLE.

Witnesses:
JOHN A. BARTON,
C. BACHMAN.

DEFENDANT'S EXHIBIT "D"

Filed July 11, 1932.
G. H. Marsh, Clerk.

No. 820,185. PATENTED MAY 8, 1906

J. W. EDMANDS.

TOOL.

APPLICATION FILED AUG. 4, 1904.

Fig. 2

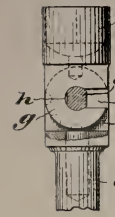


Fig. 1

Fig. 3

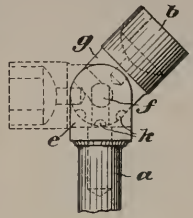


Fig 4

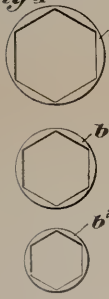
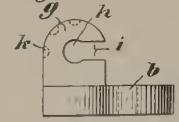


Fig 5

Fig 6



Witnesses:
Horace A. Crossman
Ernest L. Emery

Inventor:
John W. Edmands
by Emery Booth Sewell
Attys

UNITED STATES PATENT OFFICE.

JOHN W. EDMANDS, OF NEWTON CENTER, MASSACHUSETTS.

TOOL.

No. 820,185. Specification of Letters Patent. Patented May 8, 1906.

Application filed August 4, 1904. Serial No. 219,573.

To all whom it may concern:

Be it known that I, JOHN W. EDMANDS, a citizen of the United States, residing at Newton Center, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Tools, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention consists in improvements in tools or implements, being more particularly though not exclusively concerned with such tools as wrenches or the like.

I have herein illustrated one embodiment of my invention and have for the purposes of illustration shown the same as applied to a novel construction of socket-wrench, wherein there is employed a holding member provided with an adjustable and removable socket member.

My invention will be best understood by reference to the following specification when taken in connection with the accompanying illustration of one selected embodiment thereof, while its scope will be more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a longitudinal sectional view of the illustrated embodiment of my invention. Fig. 2 is a plan view of the wrench shown in Fig. 1 with one of the holder-ears and the wrench-handle broken away. Fig. 3 is a view similar to Fig. 2 without the removal of the holder-ear and with the wrench member shown adjusted to a different position. Fig. 4 shows in end view a series of replaceable socket members, and Figs. 5 and 6 are details of a fork wrench member which may be applied to the holder shown in Fig. 1.

Referring to the drawings and to the illustrated embodiment of my invention therein, I have shown a tool or implement, herein a socket-wrench, consisting of the holding member or handle *a* and the removable and adjustable wrench-head or socket member *b*. The shank of the handle is provided with a pin *c*, which permits the tool to be readily turned or twisted when grasped by the hand. The tip of the handle is provided with a pair of ears *d* and *e*, between which extends the pin *f*, rigidly secured thereto.

The socket member *b* has a hook-shaped lug *g*, which fits between the holder-ears, the said lug being provided with a circular eye *h*, having a narrowed mouth *i* extending to the edge of the lug upon one side of its axial center. The sides of the pin *f* are slabbed off lengthwise the handle to fit the mouth *i* of the lug *g*, so that by holding the socket member at substantially right angles to the handle upon one side of its axial center, as shown by dotted lines, Fig. 3, the mouth of the lug may be slipped over the slabbed-off portion of the pin and the socket member then turned about the pin, being retained by the same between the ears of the holder in the other positions to which it may be turned.

The socket member is held for use in any selected position of adjustment upon the holding member by means of the spring-pressed pin *j*, located in the shank of the holding member between the said ears and adapted to engage with any one of a series of holes *k*, arranged from its axial center toward the nut-engaging portion in the opposing edge of the lug *g*. When in use, the wrench head or member may be set to any desired angular position upon one side of its axial center relatively to the handle—such, for example, as that shown either in Fig. 2 or 3—and there retained by the pin *j*. The latter, if desired, may be proportioned to act as a latch to hold the wrench-head in its selected position of adjustment and require manual or other positive withdrawal, such as might be effected by a lug projecting on the pin through a slot in the handle to effect an unlatching of the head for removal or adjustment to a new position. In the wrench illustrated, however, the holes *k* are shown as comparatively shallow, and the tip of the pin is rounded, permitting the wrench-head to be readily snapped from one position to another by manual pressure only, which acts to force the pin out of its hole in the lug.

It will be observed that the axis of the wrench-head—that is, the axis about which the same is turned when in use—is substantially parallel with the planes of the engaging faces upon the holder-ears *d* and *e* and lug *g*. These faces, therefore, receive substantially all the torsional strain arising from the use of the wrench, and the pin *j*, which receives substantially no strain from this cause, may be made small and light, acting effectively as a locating means for the head,

C. MILLER

Socket Wrench

No. 952,435 March 15, 1910

DEFENDANT'S EXHIBIT "E"

Filed July 11, 1932.
G. H. Marsh, Clerk.

C. MILLER.

SOCKET WRENCH.

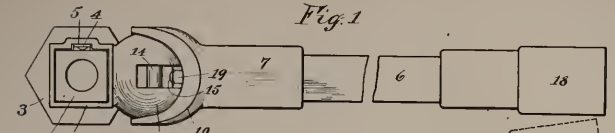
APPLICATION FILED MAR. 20, 1909.

952,435.

Patented Mar. 15, 1910.

2 SHEETS—SHEET 1.

Fig. 1



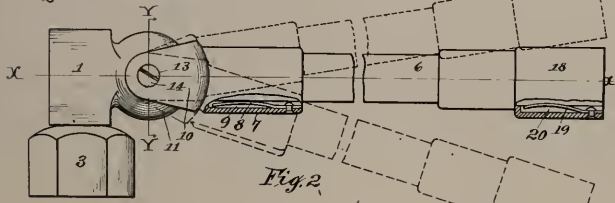


Fig. 2

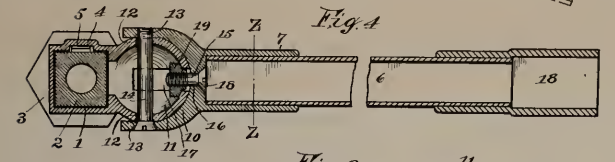


Fig. 4

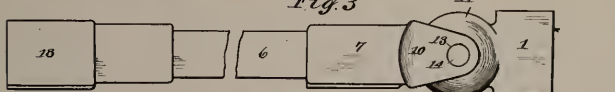


Fig. 3

Fig. 5

Fig. 6

WITNESSES:

Chas. H. Hughes.

J. W. Murray Jr.

INVENTOR.

Charles Miller

BY C. Lagerberg

ATTORNEYS.

C. MILLER.

SOCKET WRENCH.

APPLICATION FILED MAR. 20, 1909.

952,435. Patented Mar. 15, 1910.

2 SHEETS—SHEET 2.

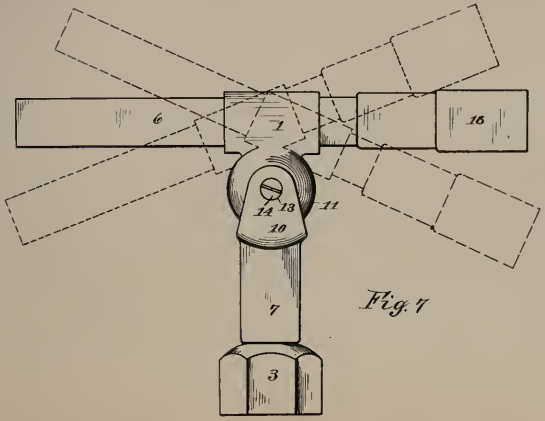


Fig. 7

Fig. 8

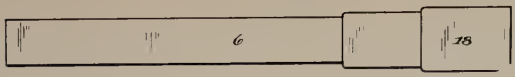


Fig. 9

WITNESSES:
Chas. E. Hughes.
Wm. H. Meier Jr.

INVENTOR.
Charles Miller
BY E. Lacey & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES MILLER, OF SYRACUSE, NEW YORK, ASSIGNOR TO C. M. B. WRENCH COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

SOCKET-WRENCH.

952,435. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed March 20, 1909. Serial No. 484,613.

To all whom it may concern:

Be it known that I, CHARLES MILLER, a citizen of the United States, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Socket-Wrenches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of socket-wrenches embodying a holder adapted to receive a stem provided with a socket designed to be applied to a nut or other similar shaped object required to be turned, said stem being detachable so as to permit the use of stems having different sized sockets, and the holder having a handle or bar connected to it for turning the same.

One of the objects of the present invention is to provide a wrench of the aforesaid character which will permit the handle to be set at different angles in relation to the holder in order that the handle may clear obstacles which might otherwise tend to interfere with its operation in some instances.

Another object of the invention is to produce a wrench having interchangeable parts whereby its efficiency will be increased.

Other objects of the invention will be apparent from the novel arrangement and combination of the component parts of the socket-wrench hereinafter fully described and set forth in the claims.

In the accompanying drawings Figure 1 is a plan view of the socket-wrench constructed in accordance with my invention; Fig. 2 is a side view showing by dotted lines the adaptability of the handle to be swung to various positions; Fig. 3 shows the side of the wrench viewed reverse to Fig. 2; Fig. 4 is a longitudinal section on the line —*x*—*x*— in Fig. 2; Fig. 5 is a transverse section on the line —*y*—*y*— in Fig. 2; Fig. 6 is a transverse section on the line —*z*—*z*— in Fig. 4; Fig. 7 is a side view of the wrench showing parts interchanged; Fig. 8 is a detached side view of the operating handle or bar; and Fig. 9 is a detached side view of the stem which is formed with the nut-socket.

Like characters of reference indicate like parts in the several views of the drawings.

My improved wrench comprises a holder —1— which consists of a cast-metal sleeve preferably formed square in cross-section and adapted to receive a removable stem —2— formed with the well known socket —3— designed to be applied to a nut or similar shaped object required to be turned. This stem may be retained in the holder —1— by any suitable means, but preferably by an elongated spring-plate —4— secured in a longitudinal channel —5— provided in the holder, said plate being designed to secure the stem by frictional engagement therewith.

This wrench also comprises a handle —6— which essentially has a pivotal connection with the holder —1—. Said handle is hollow and is formed square in cross-section and may be composed of steel or any other metal and is provided on its attaching end with a cast-metal sleeve —7— of corresponding shape in cross section, said handle being held detachably in the sleeve by frictional engagement with a spring-plate —8— suitably secured in a longitudinal channel —9— within the sleeve as shown in Figs. 2 and 6. This sleeve is formed with a socket —10— which receives a ball —11— formed integral with the holder or sleeve —1—. Said ball is hollow and is provided with oppositely disposed openings —12—12— which are slightly elongated and coincide with circular apertures —13—13— provided at opposite sides of the socket —10—, through which openings and apertures passes a pivot pin —14— whereby the aforesaid handle may be swung into various angles in relation to the holder —1—. This pin is preferably of the form of a screw, therefore one of the apertures —13— is correspondingly threaded and the other aperture provided with a countersink for the reception of the screw-head as clearly illustrated in Fig. 4. The aforesaid apertures —12—12— are elongated for the purpose of allowing the ball —11— to be drawn into frictional contact with the socket —10— so as to retain the handle in the desired position. To effect this result I provide a bolt —15— which passes through a central opening —16— in the socket, and through a coinciding slot —17— in the ball, said bolt being formed with a screw-head —18— seated in a countersink of the opening. A nut —19— on the protruding end of the bolt is formed with a convex inner face to conform to the inner surface of the ball. It is obvious that by tightening the said nut the

ball will be firmly drawn into the socket for the purpose stated. The aforesaid slot —17— in the ball accommodates the bolt to permit the said ball to turn in its socket incident to the swinging of the handle as indicated. It will be observed that by providing the two members —1—7— of the same internal dimensions, the stem —2— and handle —6— may be interchangeably applied thereto as shown in Fig. 7. This interchangeability of parts permits more extended use of the wrench.

I prefer to provide the free end of the handle —6— with a permanently attached sleeve —18— having a friction-plate —19— secured in an internal longitudinal channel —20— in said sleeve as shown in Figs. 2 and 4. By providing this sleeve —18— an additional section may be applied to the handle if required.

What I claim as my invention is:—

1. A wrench of the class specified comprising a holder having a detachable nut-socket member, and an operating handle pivotally and detachably connected to said holder, said nut-socket member and handle being interchangeable in their attachments as set forth.

2. A wrench of the class specified comprising a holder provided with a detachable nut-socket member and formed with a hollow slotted ball, an operating handle provided with a socket member receiving said ball and having a loose pivotal connection therewith, and the socket member provided with an opening coinciding with the slot in the ball, and a bolt passing through the opening and slot and provided with means shaped to conform to the interior of the ball for the purpose set forth.

3. A wrench of the class specified comprising a holder consisting of a sleeve for a nut-socket member, and formed with a hollow slotted ball, a handle provided on one end with a detachable sleeve formed with a socket receiving said ball, and means passing through the socket and into the ball for retaining said ball and socket in frictional connection as set forth.

4. A socket-wrench comprising a holder, a nut-socket member secured removably in the holder, a handle, a pivotal coupling for the handle and holder, said handle being detachable, and the nut-socket member and handle interchangeable in their connections as set forth and shown.

5. A socket-wrench comprising a holder formed with a hollow ball provided with oppositely disposed apertures, a nut-socket member formed with a stem secured detachably in said holder, a handle provided with a socket having apertures coinciding with the apertures of the ball, a pivot-pin fitted to the apertures of the socket and passing loosely through the apertures of the ball, whereby the handle is permitted to swing to different angles in relation to the aforesaid holder, and means for drawing said ball and its socket into frictional contact to sustain the handle in the required position as set forth.

CHARLES MILLER.

Witnesses:
JACOB R. BUECHELEY,
M. LAASS.

J. HELSTROM

Wrench

No. 1,168,204 January 11, 1916

DEFENDANT'S EXHIBIT "F"

Filed July 11, 1932.
G. H. Marsh, Clerk.

J. HELSTROM.

WRENCH.

APPLICATION FILED NOV. 3, 1913.

1,168,204.

Patented Jan. 11, 1916.

Fig. 1.

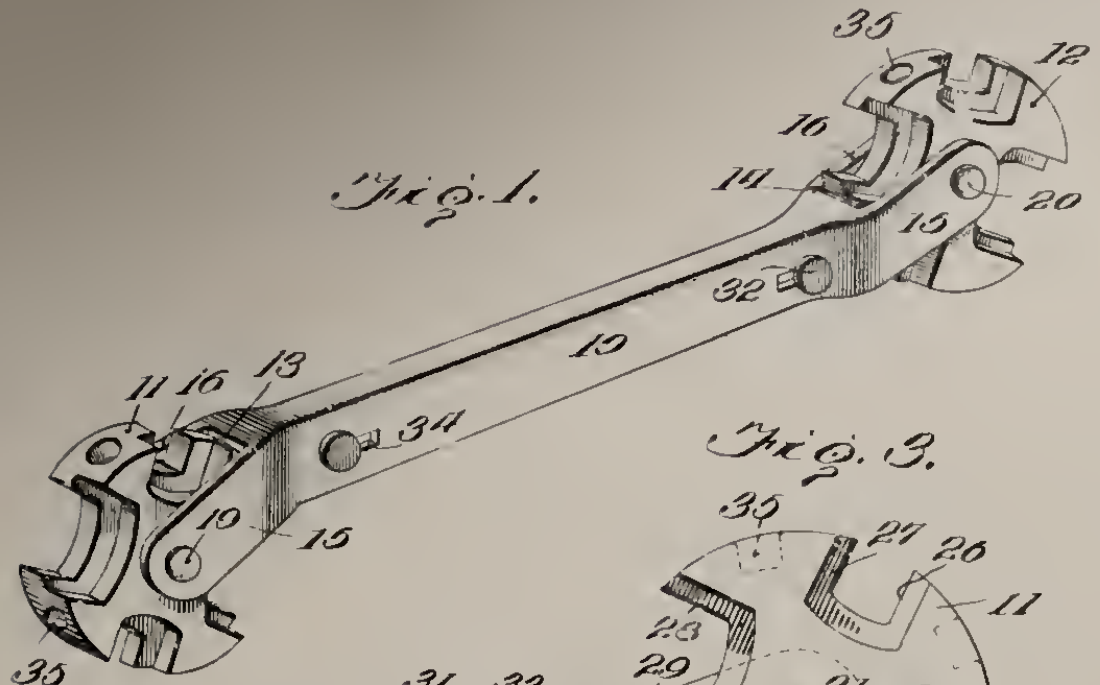


Fig. 3.

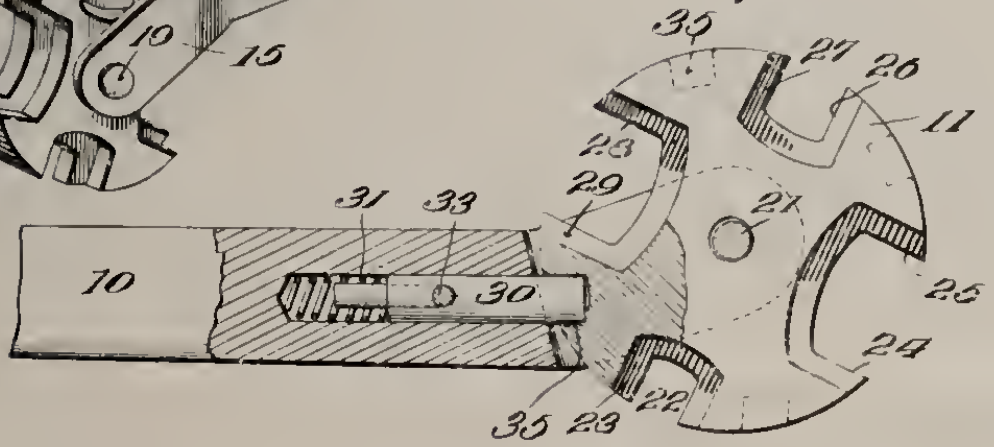
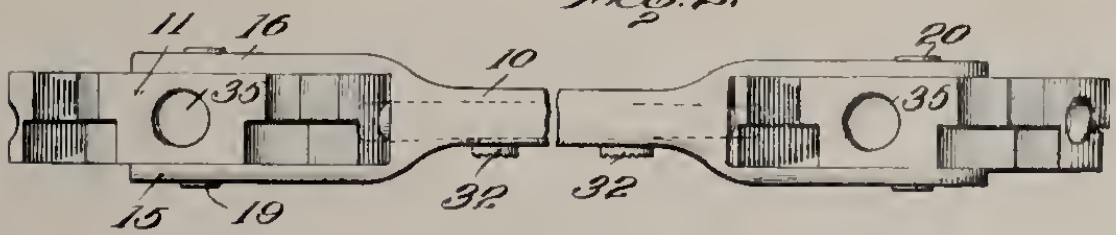


Fig. 2.



Inventor

John Helstrom.

Witnesses

C. H. Landon.

By

Attorneys

UNITED STATES PATENT OFFICE.

JOHN HELSTROM, OF MORRISTOWN, NEW JERSEY.

WRENCH.

1,168,204. Specification of Letters Patent. Patented Jan. 11, 1916.

Application filed November 3, 1913. Serial No. 798,995.

To all whom it may concern:

Be it known that I, JOHN HELSTROM, citizen of the United States, residing at Morristown, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The subject matter of the present invention is directed to new and useful improvements in wrenches and has particular reference to those which are designed especially for use in connection with farm machinery and the like.

As its principal object, this invention aims to provide a wrench of the type specified consisting broadly in a double-ended handle and a pair of revoluble wrench heads which are journaled in the ends of the handle, the wrench heads being each formed with a plurality of nut receiving notches or jaws so that they may be employed in applying or removing nuts of any size within a reasonable range.

A further object is to provide a novel form of locking dog whereby the revoluble wrench heads may be readily and easily locked in adjusted position.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein there has been illustrated the preferred embodiment of this invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts, Figure 1 is a perspective view of the composite tool; Fig. 2 is a top plan view; and Fig. 3 is a detail view illustrating in longitudinal section the terminal of the wrench shank and one segment of the wrench head, disclosing particularly the manner in which the locking dog operates to hold the wrench head in adjusted position.

As most clearly shown in Fig. 1, the preferred form of this wrench includes the body or handle member 10 in each end of which is journaled a revoluble wrench head as indicated at 11 and 12.

The body or handle of the wrench, which will be hereinafter designated as an entirety by the numeral 10, is formed from a metallic bar of tempered steel, cast iron or any other metal which may be found efficient for the uses to which the particular wrench is to be put. This handle is formed in the nature of an elongated bar, the terminals of which are oppositely bent or offset and bifurcated as at 13 and 14 to produce on each terminal a pair of spaced arms or forks 15 and 16. These members 15 and 16 are designed to receive between their adjacent faces the wrench heads 11 and 12 and are, for this purpose, terminally apertured in order to provide for the seating of the axles 19 and 20 on which the wrench heads are keyed as will be hereinafter more fully explained.

It may be well to explain at this point that the necessity for bending or offsetting the terminals of the handle 10, in opposite directions, arises out of the fact that it has been found to be inconvenient to apply the wrench heads when they are longitudinally alined inasmuch as the inactive head is liable to engage against an adjacent portion of the structure to which the bolt is attached, thus operating against the efficient and convenient manipulation of the tool.

The wrench heads 11 and 12 which are, as previously stated, rotated at the terminals of the handle 10, are substantially identical in construction and it is deemed necessary therefore to describe only one of them in detail, the member 11 being chosen in this instance. The wrench head 11 consists essentially in a circular metallic disk which is relatively thick and is centrally provided with an aperture 21 which receives the axle 19. At four approximately spaced points in the periphery of the disk there are formed pairs of notches which are individually designated in Fig. 3 by the numerals 22 and 23, 24 and 25, 26 and 27, 28 and 29. As stated, a pair of notches is formed at each of the four points in the periphery of the wrench head. It will be noted, upon reference to Fig. 1, that the notches of each pair are of a different size and that the pairs of notches are also of a different size so that there are provided in the wrench head eight notches or nut receiving jaws of different dimensions. In forming the pairs of notches, four relatively small notches are cut from one face of the head, while four relatively large notches are cut from the other face of the head.

It will thus be seen by reference particularly to Figs. 1 and 2 that each wrench head

consists in reality in a metallic disk which includes a central portion receiving the axle or pin 19 or 20, as the case may be, and a plurality of substantially T-shaped segments which radiate from the central portion and define between their adjacent edges pairs of notches. Obviously also the notches included between the adjacent terminals of the head portions of the T-shaped segments are of less size than the notches defined by the adjacent edges of the stem portions of the said T-shaped segments.

The foregoing disclosures will be particularly appreciated when reference is had to Fig. 1 in which is illustrated, as previously stated, a perspective view of a complete wrench. The wrench head 12 being substantially similar to the wrench head 11, above described, it will not be necessary to give a detailed description of this member, but it is desirable to mention that the notches or nut receiving jaws of the member 12 are all of varying dimensions and are also of different dimensions than the corresponding elemente of the wrench head 11. It will thus be seen that while the present wrench includes only two revoluble wrench heads, provision is made for the reception of these two heads and of nuts of sixteen different sizes. In the preferred embodiment, the notches are so formed that they will accommodate nuts ranging from the quarter inch size to the one and one-quarter inch size, being adapted to receive five-sixteenths, three-eighths, seven-sixteenths, one-half inch nuts, etc.

It is of course obvious from the foregoing description that it is necessary to provide some means for holding the wrench heads in adjusted position so that any one of the several notches of each head may be held in fixed relation to the handle member. For this purpose, therefore, there is provided in each wrench handle 10 a locking dog 30. Each of these members 30 consists of an ordinary metal pin which is mounted for sliding movement in the longitudinally extending bores formed in the terminal of the handle as indicated at 31. Helical springs are interposed between the inner ends of the bores and the adjacent terminal of the locking dogs so that the dogs will be constantly urged into engagement with the periphery of the wrench heads.

As a means for withdrawing the dogs from locking engagement with the wrench heads, each dog is equipped with a finger member 32, the shanks 33 of which extend through slots 34 which are formed in the handle and communicate with the bores 31. The terminals of the dogs are of course rounded or pointed so that they may move with ease into the radial bores 35 which are formed in the periphery of the wrench heads. It may be noted that these radial bores are four in number in each wrench head, the purpose of such an arrangement in the bores being obvious.

Attention is now directed to the fact that the axis of each of the wrench heads is offset relative to the axis of the shank of the wrench. The work receiving notches in each of the wrench heads and the bores 35 therein are arranged in staggered relation so that each bore upon one side of each of the said wrench heads is diametrically offset relative to the corresponding notch upon the opposite side thereof. It will now be observed that the dogs 30 are shiftable axially of the shank of the wrench to selectively engage in said bores of the respective wrench heads so that consequently, leverage upon the shank of the wrench tending to rotate one of the heads when engaged with the work will be communicated through the said head in angularly disposed radial lines passing through the axis of the head and the notch thereof engaged with the work and the coacting dog 30 respectively. Thus, at no time will the leverage upon the wrench head be communicated therethrough in diametric straight lines such as would tend to break the wrench head, its pivot, or shear the dog 30. Consequently, the peculiar arrangement disclosed of the several elements of the wrench contributes materially to the strength and durability of the structure.

In reduction to practice, it has been found that the form of this invention illustrated in the drawings, and referred to in the above description as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of this device will necessarily vary, it is desired to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of this invention, as defined in the appended claims.

What is claimed is:—

1. A wrench including a shank having offset fork arms, a revoluble wrench head mounted between the said arms with its axis offset relative to the axis of the shank, said wrench head being provided upon one side with a work receiving notch and upon its opposite side with a socket diametrically offset relative to the notch, and locking means for the wrench head shiftable axially of the shank, to project through one end thereof between said arms for engagement in said socket, whereby leverage upon the shank tending to rotate the head will be communicated through the head in angularly disposed radial lines passing through the axis of the head and through said notch and socket respectively.

2. A wrench including a shank having offset arms, a revoluble wrench head mounted

between said arms with its axis offset relative to the axis of the shank, said wrench head upon one side being formed with a work engaging portion, and locking means for the head shiftable axially of the shank to project between the arms in engagement with the head upon its opposite side at a point diametrically offset relative to the work engaging portion of the head, whereby leverage upon the shank tending to rotate the head will be communicated through the head in angularly disposed radial lines passing through said work engaging portion and the said point respectively.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HELSTROM. [L. S.]

Witnesses:

ELMER W. ROMINE,

H. LEO ROMINE.

E. R. MIOTTEL

Socket Wrench

No. 1,169,987 February 1, 1916

DEFENDANT'S EXHIBIT "G"

Filed July 11, 1932.
G. H. Marsh, Clerk.

E. R. MIOTTEL.

SOCKET WRENCH.

APPLICATION FILED APR. 21, 1915.

1,169,987. Patented Feb. 1, 1916.

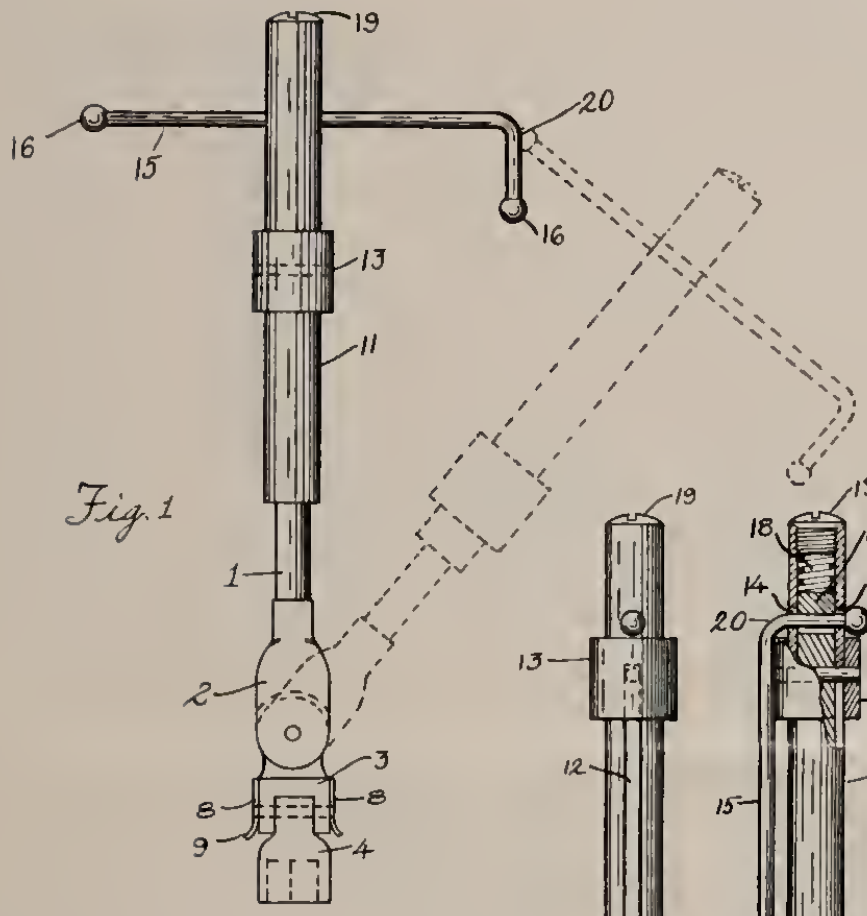


Fig. 1

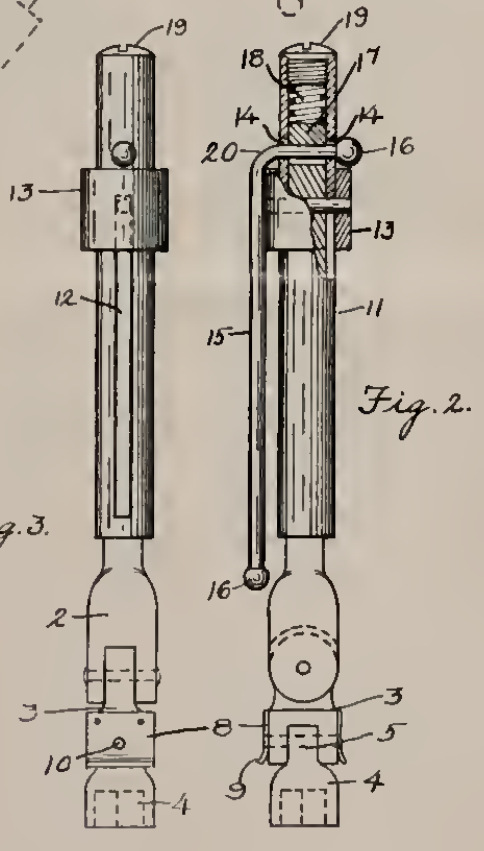


Fig. 2.

Fig. 3.

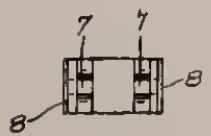


Fig. 5.

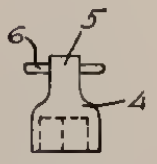


Fig. 4.

WITNESS:
Emens B. Wiener

INVENTOR.
EMILE R. MIOTTEL

BY
Charles E. Wiener
ATTORNEY

UNITED STATES PATENT OFFICE.

EMILE R. MIOTTEL, OF DETROIT, MICHIGAN, ASSIGNOR OF SEVENTEEN ONE-HUNDREDTHS TO EDWARD F. HOFFMAN, SIXTEEN ONE-HUNDREDTHS TO HARRY F. HOFFMAN, AND SIXTEEN ONE-HUNDREDTHS TO ALFRED H. HOFFMAN.

SOCKET-WRENCH.

1,169,987. Specification of Letters Patent. Patented Feb. 1, 1916.

Application filed April 21, 1915 Serial No. 22,744.

To all whom it may concern:

Be it known that I, EMILE R. MIOTTEL, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Socket-Wrenches, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings which form a part of this specification.

This invention relates to socket wrenches and an object of the invention is a wrench in which the socket or nut engaging head is pivotally mounted for universal movement relative to the shank whereby the device is adaptable for use in operating on nuts in positions inaccessible with an ordinary wrench.

A further object of the invention is a wrench of the character stated in which the sockets are readily interchangeable, springs being employed to hold the socket in its position relative to the handle.

A further object of the invention is a device in which the handle is longitudinally adjustable to enable the operator to manipulate nuts that are positioned at some distance from the outside of a mechanism, as an automobile engine mounted in a frame. By lengthening the handle the "reach" of the wrench is increased.

An additional object of the invention is a wrench of the character stated that may be folded or adjusted to small compass.

With these and other objects in view the invention consists in the construction and the novel arrangement of parts as hereinafter more fully described and claimed and shown in the accompanying drawings in which—

Figure 1 is an elevation of a wrench embodying my invention showing the adaptability for operation at an angle with the longitudinal axis of the bolt and nut operated on. Fig. 2 is a view of the wrench when folded showing in detail the means employed in holding the operating or turning handle in position. Fig. 3 is a similar view showing the other side of the wrench. Fig. 4 is a side elevation of the socket employed with the wrench. Fig. 5 is a face view of the socket holder.

Similar characters refer to similar parts throughout the drawing and specification.

The wrench consists preferably of a shank 1, having a bifurcated end 2 pivotally supported in which is a pivot block 3 adapted at one end to receive the socket 4. As shown more clearly in Figs. 2 and 5, the pivot block or socket support 3 is also bifurcated to receive and pivotally support the tongue 5 of the socket 4. As shown in Fig. 4 this tongue 5 has secured thereto a pin 6, the ends of which are preferably rounded as shown and projecting equidistantly each way from the tongue. Each furcation of the socket support 3 is channeled or grooved at 7 to receive the ends of the pin 6 secured to the socket tongue, and to each furcation of the socket support 3 is secured a flat spring plate 8, the ends of which are curved outwardly as indicated at 9 to enable the socket tongue and pin to be pushed into place readily. The spring plates 8 are apertured at 10 in alinement with the grooves 7 so that, when the pin is seated in the said grooves, the plates spring back into contact with the sides of the socket support 3 and engage over the ends of the pin 6, thus retaining the socket in the support 3. By springing either of the plates sidewise slightly with the thumb or finger, the socket may be readily removed from the support.

By reason of the socket being pivoted in its support and the support pivoted to the shank, a universal joint is formed whereby the socket may be operated with the shank extending at an angle to the longitudinal axis thereof as indicated in Fig. 1, as will be readily understood by mechanics.

In order that the handle of the wrench may be lengthened for use in manipulating nuts in inaccessible positions, the shank is provided with a tubular, telescoping, extension 11. This extension is slotted upon opposite sides as indicated at 12 in Fig. 3, and at the extreme end of the shank a pin is inserted through the shank 1, through each of the slots 12, and a collar 13 encircling the tubular member 11. These parts are made to fit rather tightly so that some little friction exists between the parts whereby the said extension remains in the position placed and may be drawn out to its fullest extent as determined by the length of the slots or may be set in any intermediate po-

sition as may be desired. The tubular part 11 extends beyond the end of the shank 1 and is apertured at 14, 14, as shown to receive the turning handle or operating bar 15. This bar is provided with an enlargement 16 at each end to prevent its removal through the apertures 14. A retaining block 17 is also provided in the upper end of the tubular extension grooved to engage the handle and held in frictional contact therewith by means of the coiled spring 18 retained in the extension by means of a screw 19 in threaded engagement with the end of the tubular extension. The handle 15 has a bent end portion 20 extending substantially at a right angle with the body of the handle and of such length that, when the bent portion is drawn through into the apertures 14 as shown in Fig. 2, the body of the handle lies adjacent to and parallel with the shank at which time the tubular extension may be shoved down onto the shank to close the wrench into the smallest possible compass.

From the foregoing description it becomes evident that the wrench is of simple form and construction and comparatively inexpensive to manufacture, that it is adaptable for use with a variety of sockets which are interchangeable and readily positioned in the support, and that the universal joint connection with the shank enables the device to be used in positions ordinarily inaccessible with wrenches of the ordinary type.

Having thus briefly described my invention and its utility, what I claim and desire to secure by Letters Patent of the United States is—

1. In a wrench, a shank, a socket support pivotally connected therewith, a socket having a pin secured thereto, the support being adapted to receive said pin providing a pivotal mounting for the socket at right angles to the pivotal mounting of the support, and spring retainers on the support adapted to engage said pin.

2. In a wrench, a shank having a bifurcated end, a bifurcated socket support having a tongue pivotally mounted therein, a socket having a tongue engaging between furcations of the support, a pin secured to said socket tongue, and spring retainers on the support adapted to engage the ends of the pin to detachably hold the socket in pivotal relation with the support.

3. A socket wrench comprising a shank having a bifurcated end, a bifurcated socket support pivotally mounted in the said bifurcated end, a socket having a tongue adapted to engage between furcations of the support, a pin projecting from each side of the tongue of the socket, the ends of the furcations of the support being grooved to receive said pin, and a pair of spring retainers on the support adapted to engage the pin and yieldably hold the socket in place.

4. A socket wrench comprising a shank having a bifurcated end, a bifurcated socket support pivotally mounted in the said bifurcated end, a socket having a tongue adapted to engage the furcations of the support, a pin projecting from each side of the tongue of the socket, the ends of the furcations of the support being grooved to receive the pin, and a pair of flat spring plates secured to the opposite sides of the support having apertures in alinement with the said groove adapted to engage the pin, said plates being curved at the free ends and the ends of the pin being rounded whereby the socket may be readily attached or detached from the spring.

5. A socket wrench comprising a shank, a socket having a universal joint connection therewith, a tubular extension in telescopic relation with the shank, said extension being slotted upon opposite sides, a collar engaging about the extension and secured to the shank by a pin passing through said slots, and a turning handle mounted in the extension adapted to be folded parallel with the said extension.

In testimony whereof, I sign this specification.

EMILE R. MIOTTEL.

M. MILLER & A. D. BURG

Wrench

No. 1,175,973 March 21, 1916

DEFENDANT'S EXHIBIT "H"

Filed July 11, 1932.
G. H. Marsh, Clerk.

M. MILLER & A. D. BURG.

WRENCH.

APPLICATION FILED DEC. 2, 1915.

1,175,973.

Patented Mar. 21, 1916.

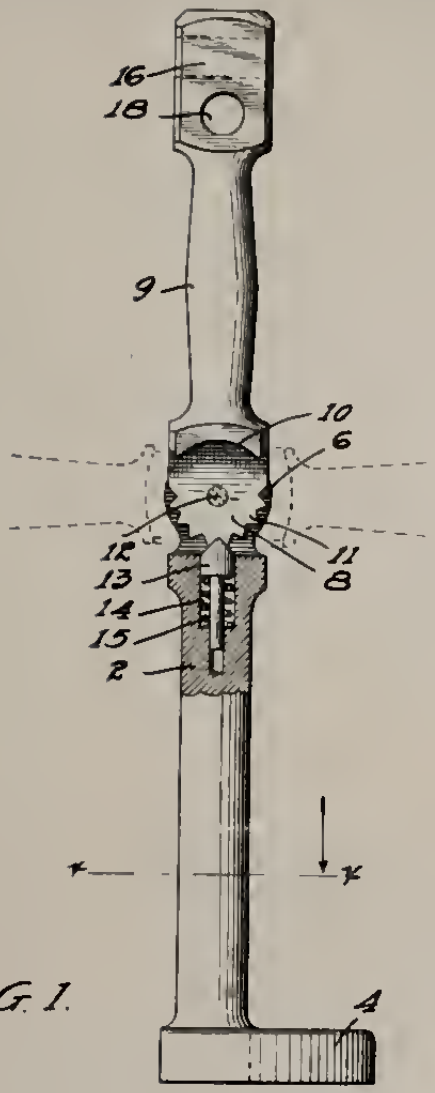


FIG. 1.

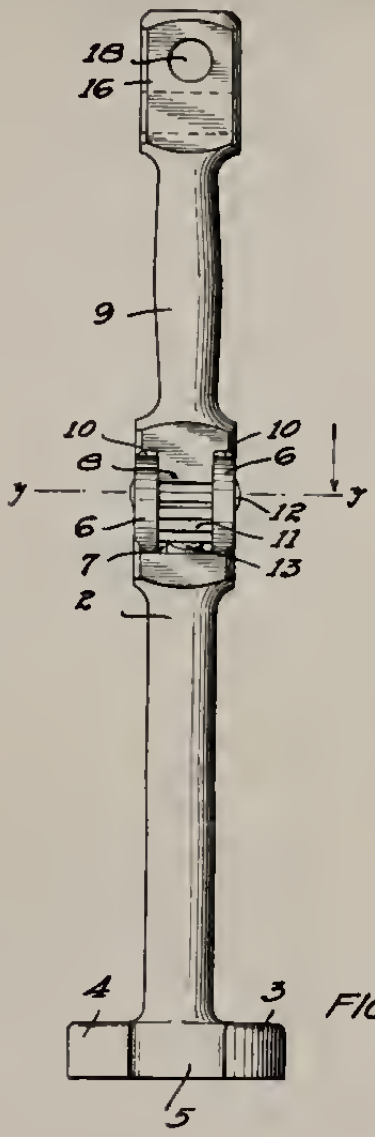


FIG. 2.

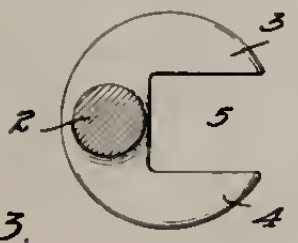


FIG. 3.

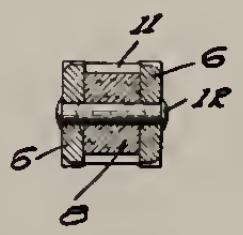


FIG. 4.

WITNESSES

M. R. M. Lennig

E. A. Paul

INVENTORS

MELCHIOR MILLER

ALFRED D. BURG

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

MELCHIOR MILLER AND ALFRED D. BURG, OF LE MARS, IOWA.

WRENCH.

1,175,973. Specification of Letters Patent. Patented Mar. 21, 1916.

Application filed December 2, 1915. Serial No. 64,725.

To all whom it may concern:

Be it known that we, MELCHIOR MILLER and ALFRED D. BURG, citizens of the United States, residents of Le Mars, county of Plymouth, State of Iowa, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of our invention is to provide a wrench that will fit the bur or bolt-head at any angle.

A further object is to provide a wrench by means of which a bur or bolt in an almost inaccessible position can be easily reached and loosened or tightened.

A further object is to provide a wrench of simple, durable construction and one which will be comparatively inexpensive to manufacture.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification. Figure 1 is a side view of a wrench embodying our invention, partially in section, Fig. 2 is a view of the wrench, looking toward the opening between the jaws, Fig. 3 is a sectional view on the line x—x of Fig. 1, Fig. 4 is a sectional view on the line y—y of Fig. 2.

In the drawing, 2 represents the shank of the wrench, having jaws 3 and 4 formed thereon in a plane at right angles to the axis of the shank and having a socket 5 formed between them that is adapted to receive a bolt head or bur on which the wrench is used. We propose to provide wrenches of different sizes having sockets of varying width to adapt them for the different sizes of burs and bolts and preferably the wrenches will be sold in sets of a suitable number, with sufficient variation in the sockets to adapt the tools for all burs and bolts that may be encountered in a machine or vehicle.

The end of the shank 2 opposite the jaws has ears 6 formed thereon with a space 7 between them to receive a tongue 8 formed on the end of a handle 9 having shoulders 10 which are seated on the rounded ends of the ears. The tongue 8 has a curved surface provided with ratchet teeth 11 and a pin 12 passes through the ears 6 and through said tongue and secures the parts together. A latch 13 is mounted in a socket 14 in the shank 2 and provided with a spring 15 which yieldingly holds the tapered end of the latch in engagement with the teeth of the ratchet. This handle 9 is free to swing through an arc of 180 degrees, as indicated by the full and dotted lines in Fig. 1, and may therefore be set at right angles to the shank 2 or in line therewith, or at any angle intermediate to the full and dotted line position. This adjustment of the handle adapts the wrench for a variety of uses. It may be thrust in between the spokes of a wheel or pulley and can be inserted in positions where it would be utterly impossible to use a wrench of the ordinary type.

The handle is preferably provided with an end portion 16 having holes 18 extending therethrough at right angles to one another into which a punch or other suitable article may be inserted for the purpose of forming an auxiliary handle when the handle proper is in alinement with the wrench shank. The ratchet device will hold the handle in its different adjusted positions and provides a flexible joint which permits the convenient movement of the handle either to the right or the left, according to the position in which it is desired to place the wrench jaws.

In various ways the details of construction herein shown and described may be modified and still be within the scope of our invention.

We claim as our invention:

1. A wrench comprising a shank having jaws formed thereon in a plane at right angles substantially to the axis of said shank, a handle hinged on the other end of said shank and provided with a hand grip, said handle having holes extending therethrough in which a supplementary handle may be inserted, the hinged connection of said handle with said shank permitting it to be adjusted at an angle thereto, and means for holding said handle in its adjusted positions.

2. A wrench comprising a shank having a substantially flat disk eccentrically mounted on one end of said shank in a plane at right angles substantially to the longitudinal axis of said shank, said disk having a recess in one side thereof extending inwardly to a point adjacent the center of said disk and the wall of said shank, the walls of said recess forming jaws for gripping a nut or bolt-head inserted into said recess, a

hand grip pivotally connected with the other end of said shank and free to swing to a position in alinement with said shank or angularly with respect thereto, and means for holding said hand grip in its adjusted position, for the purpose specified.

3. A wrench comprising a shank having a disk eccentrically mounted on one end of said shank in a plane at right angles substantially to the longitudinal axis of said shank, said disk having a recess in one side thereof extending inwardly to a point adjacent the center of said disk and the wall of said shank, the wall of said recess forming jaws for gripping a nut or bolt-head inserted into said recess, a hand grip pivotally connected with the other end of said shank and free to swing to a position in alinement with said shank or angularly with respect thereto, for the purpose specified.

In witness whereof, we have hereunto set our hands this 27″ day of November 1915.

MELCHIOR MILLER.
ALFRED D. BURG.

Witnesses:
J. T. KEENAN,
JANE PERRY.

O. F. BALTZLEY

Tool

No. 1,209,658 Dec. 26, 1916

DEFENDANT'S EXHIBIT "I"

Filed July 11, 1932.
G. H. Marsh, Clerk.

O. F. BALTZLEY.

TOOL.

APPLICATION FILED FEB. 18, 1916.

1,209,658. Patented Dec. 26, 1916.

Fig. 1.

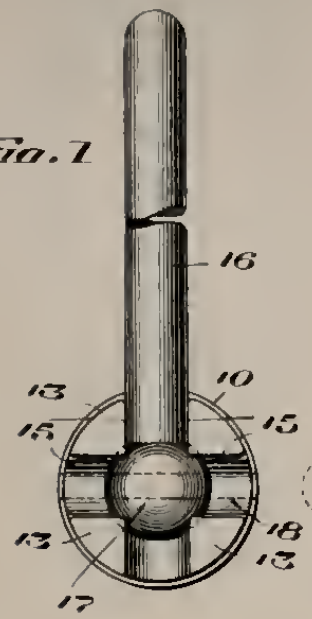


Fig. 2.

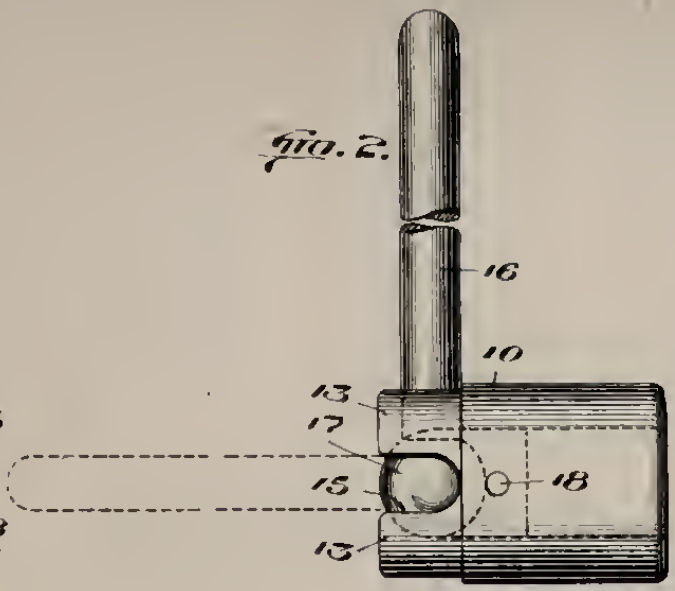


Fig. 3.

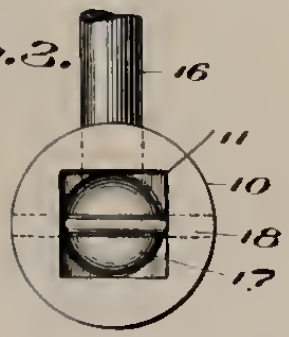


Fig. 4.

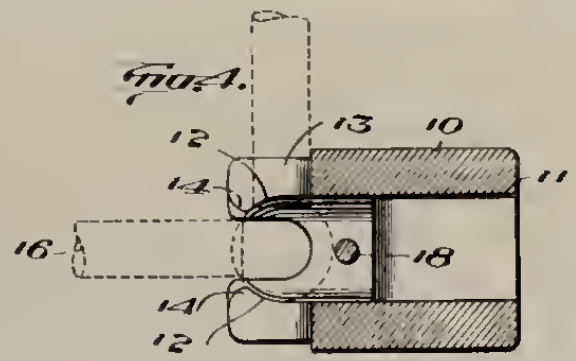


Fig. 5.

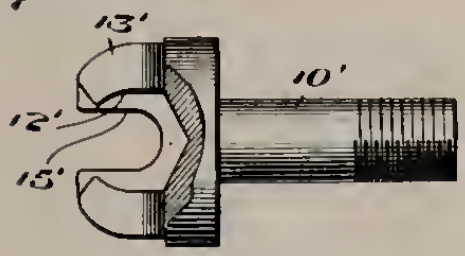
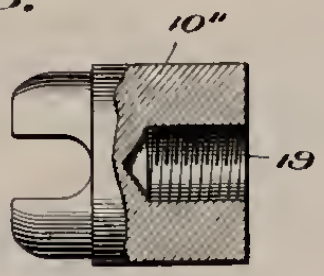


Fig. 6.



Inventor

Witnesses

Walter E. Barnes

T. Blaylindsey

O. F. Baltzley.

By Lemuel Cushman Rea

Attorney

UNITED STATES PATENT OFFICE.

OREN F. BALTZLEY, OF HAGERSTOWN, MARYLAND.

TOOL.

1,209,658. Specification of Letters Patent. Patented Dec. 26, 1916.

Application filed February 18, 1916. Serial No. 79,085.

To all whom it may concern:

Be it known that I, OREN F. BALTZLEY, a citizen of the United States, residing at Hagerstown, in the county of Washington, and State of Maryland, have invented new and useful Improvements in Tools, of which the following is a specification.

This invention relates to tools wherein a rotatable member is provided with a handle by means of which the rotatable member is adapted to be turned, step by step, or continuously rotated.

Objects of my invention are to provide a tool which is particularly adapted for use in places not readily accessible, or where an obstruction or the like prevents the continuous movement of the rotatable member by means of the handle; to provide such a tool which is very simple in construction and which is especially durable, having the necessary strength and rigidity to resist any breaking or torsional strain exerted thereon; to provide a device which comprises substantially few parts, which may be manufactured at a relatively low cost, and which may be assembled in a quick and ready manner.

The above and other objects of my invention are obtained in the structure described in the following specification and illustrated in the accompanying drawing wherein—

Figure 1 is an end elevation of a wrench constructed in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is an end view of the wrench looking at the end opposite to that shown in Fig. 1. Fig. 4 is a sectional view taken through the socket member of the wrench, the handle being shown in dotted lines. Fig. 5 is an elevational view partly in section illustrating my invention as embodied in a bolt. Fig. 6 is an elevational view partly in section showing my invention applied to a nut.

Referring to the drawings, wherein like numerals represent like parts in the several views, 10 designates a rotatable member which in Figs. 1 to 4 is illustrated as being the nut-receiving or socket member of a wrench. The socket member 10 has a socket opening 11 through the body portion thereof which, as shown in Fig. 4 is square in cross-section, so as to receive a square-headed bolt nut, or the like, but, of course, the socket opening 11 may be a polygon of any number of sides, such as, for instance, six or eight. At one end of the socket or rotatable member 10 is a handle-receiving socket or seat 12 which is preferably formed of a plurality of projections 13 provided with internal shoulders 14 projecting inwardly toward the axial center of the socket member and beyond the line of the walls of the socket opening 11. The bearing surfaces of the shoulders 14 are preferably curved to make the socket or seat 12 of spherical shape.

15 designates notches or grooves in the end of the socket member and between the projections 13 and in the present illustration of my invention four such notches are shown which, of course, corresponds to the number of projections, but it is to be understood that the number of notches and projections may be varied as desired.

The member which coöperates with the socket member 10 comprises a handle portion 16 having a spherical ball 17 at its end, which ball is adapted to seat in the spherical seat or socket 12, so as to provide a ball-and-socket arrangement. With the construction shown in Figs. 1 to 4 the handle 16 and the socket member 10 are assembled by inserting the outer end of the handle in the open end of the socket opening 11 and drawing the socket member downwardly over the handle until the ball engages in the spherical socket 12, it being understood that the socket opening 11 is just large enough to receive the ball 17. If desired, a pin 18, or other means may be provided to retain the ball in its spherical seat, and in the present instance the pin is shown as extending diametrically through the walls of the socket member and across the socket opening thereof.

The operation of my device is evident from the above description, it being understood that when it is desired to turn a nut or bolt the head of the same is received by the socket opening 11 of the socket member and the handle is drawn or moved into position at right angles to the axial line of the socket member, so that the handle engages in one of the notches 15 and between the projections as shown in full lines, Fig. 2. The handle is then given a partial turn until an obstruction or the like prevents further rotary movement when the handle is withdrawn from the notch in which it is engaged by moving the same into axial alinement with the socket member, which position is shown by dotted lines, Fig. 2, it being then

moved into the next succeeding notch or groove and given another partial turn, and so on, until the nut is turned into place. Of course, if no obstruction is present the socket member may be moved continuously.

In Fig. 5, which discloses another application of my improvement, I have illustrated the rotatable member as having a bolt portion or screw-threaded shank 10'. Integral with the bolt 10' is a handle-receiving socket member having a spherical seat 12' formed by projections 13' which are turned inwardly toward each other and over the ball, after the ball 17 of the handle is placed therebetween, so as to prevent withdrawal of the ball from the spherical seat 12.

In Fig. 6 is a structure similar to that disclosed in Fig. 5, except that in place of a bolt the rotatable member consists of a nut 10'' having a screw-threaded socket 19 to receive the end of a bolt, or the like.

It is, of course, to be understood that my device is applicable to other uses than those disclosed and the rotatable member may be changed as desired depending on the use to which my device may be put.

My device is susceptible of various modifications and changes which would be within the spirit of my invention without departing from the scope of the following claims.

What I claim is:—

1. In combination, an operating member and a rotatable member, one of said members having an enlarged portion, and the other of said members having a socket receiving said enlarged portion, one of said members also having a plurality of notches any one of which is adapted to receive the other member when the members are in position for turning the rotatable member.

2. In combination, an operating member and a rotatable member, one of said members having an enlarged portion, and the other of said members having a socket receiving said enlarged portion, the member having said socket also having a plurailty of notches any one of which is adapted to receive the other member when the members are in position for turning the rotatable member.

3. In combination, an operating member and a rotatable member, one of said members having an enlarged portion, and the other of said members having a socket for receiving said enlarged portion, said member having said socket also having projections thereabout against any one of which said member having said enlarged portion is adapted to engage to permit turning of the rotatable member.

4. In combination, a handle having an enlarged end, and a rotatable member having a socket receiving said enlarged end, said rotatable member also having a plurality of notches in any one of which said handle is adapted to engage to permit turning of said rotatable member.

5. In combination, a handle having an enlarged end, and a rotatable member having a socket for receiving said enlarged end, and projections about said socket against any one of which the handle is adapted to engage to permit turning of said rotatable member.

6. In combination, a handle having a spherical ball at one end thereof, and a rotatable member having a spherical socket to receive said ball, said rotatable member having notches in the wall of said socket any one of which is adapted to receive said handle to permit turning of the rotatable member.

7. In combination, a handle having a ball at one end thereof, a rotatable member having a socket opening to receive a nut or the like, a spherical socket on said rotatable member for said ball, and grooves or notches in the walls of said socket to receive said handle to permit turning of the rotatable member.

8. In combination, a handle having a ball, a rotatable member having a through opening large enough to allow said ball to pass therethrough, a socket at the end of said opening for the reception of the ball and notches in said socket adapted to receive the handle to permit turning of the rotatable member.

9. In a wrench, a handle having an enlarged end, a socket member having a socket opening to receive a nut or the like, and a spherical seat for said enlarged end having notches in its walls for the reception of the handle to permit turning of the rotatable member.

10. In a wrench, a handle having a spherical ball at one end, a socket member having a socket opening to receive a nut or the like and through which the ball is adapted to pass, a spherical seat at one end of said socket member adapted to receive said ball and having notches in its walls for the reception of the handle to permit turning of the rotatable member.

11. In combination, a handle having a ball at one end thereof, a rotatable member having a through socket opening to receive a nut or the like and through which the ball is adapted to pass, a spherical socket on said rotatable member for said ball and having grooves or notches in its walls to receive said handle to permit turning of the rotatable member, and means to prevent displacement of said ball from its spherical socket.

12. In combination, a handle having a ball at one end thereof, a socket member having a socket opening to receive a nut or the like and through which the ball is adapted to pass, a spherical seat for said

hall having notches in its walls for the reception of the handle to permit turning of the rotatable member, and a pin passing through said socket opening to prevent displacement of the ball from its spherical seat.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OREN F. BALTZLEY.

Witnesses:
C. E. ALLERT,
D. ELMER WOLF.

M. J. FAIRCHILD

Socket Wrench

No. 1,292,285 January 21, 1919

DEFENDANT'S EXHIBIT "J"

Filed July 11, 1932.
G. H. Marsh, Clerk.

M. J. FAIRCHILD.

SOCKET WRENCH.

APPLICATION FILED JUNE 19, 1918.

1,292,285.

Patented Jan. 21, 1919.

Fig 1

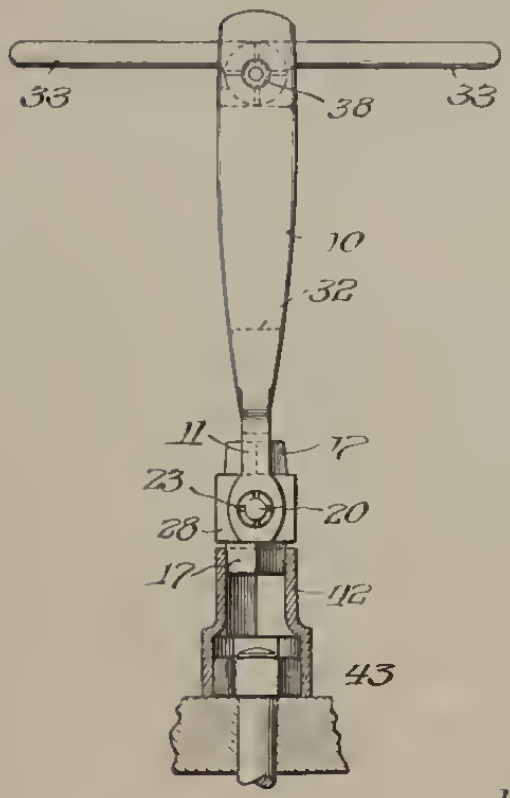


Fig 2

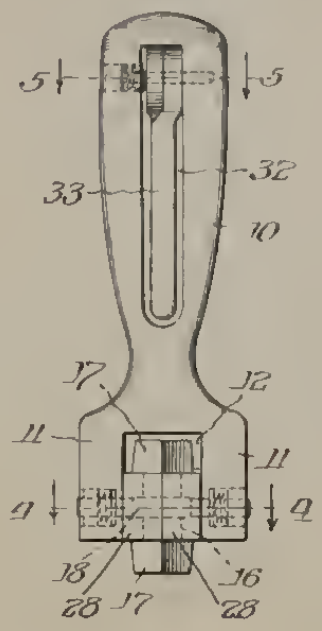


Fig 4

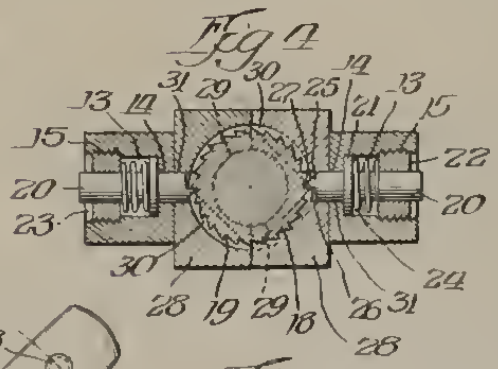


Fig 3

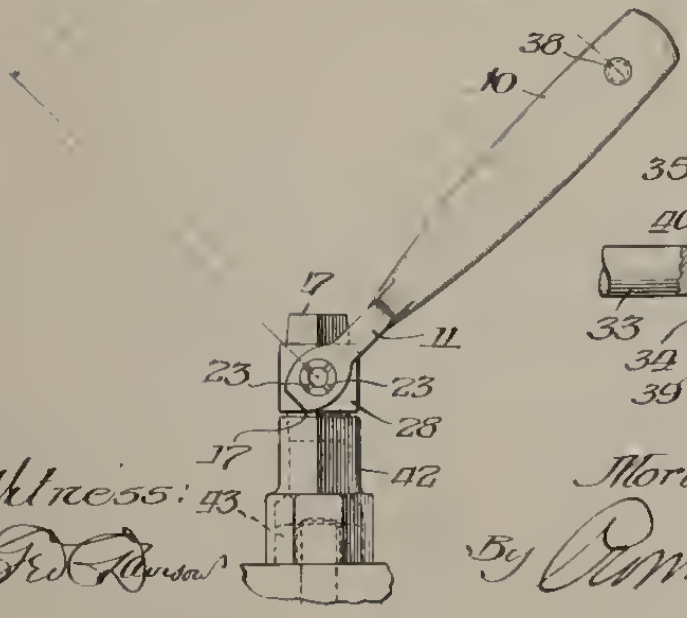
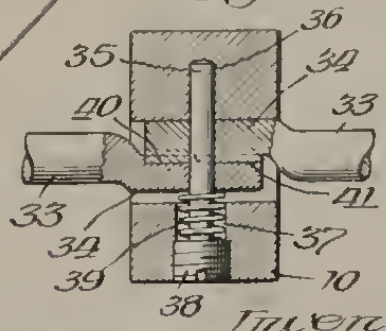


Fig 5



Witness:

Fred Hanson

Inventor:

Mortimer J. Fairchild,

By Pennell Geist & Harden

Attys.

UNITED STATES PATENT OFFICE.

MORTIMER J. FAIRCHILD, OF ELGIN, ILLINOIS.

SOCKET-WRENCH.

1,292,285. Specification of Letters Patent. Patented Jan. 21, 1919.

Application filed June 18, 1918. Serial No. 240,749.

To all whom it may concern:

Be it known that I, MORTIMER J. FAIRCHILD, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Socket-Wrenches, of which the following is a specification.

This invention relates to improvements in wrenches of the type commonly designated as socket wrenches or those wherein is embodied an actuating head designed for coöperation with a socket member properly shaped for application to the work.

It is the main and primary object of the present invention to improve the general construction of socket wrenches whereby to render them capable of greater range of use in restricted localities, and to simplify the same as far as possible in order to reduce wear in the working parts to a minimum and thereby prolong the life of the wrench.

A further object of the invention is the provision of a wrench of the class described the parts of which are so organized and related as to be easily and quickly assembled, as well as taken apart when necessity for inspection or repair may arise, and which will provide a highly compact structure to economize in space in packing and shipment.

Other objects and advantages will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and finally pointed out in the appended claims. It is to be understood, however, that the present exemplification of the invention is but one embodiment thereof, and the same, therefore, is to be taken only in an illustrative, and not in a restrictive, sense.

In the drawings—

Figure 1 is a side elevation of a socket wrench constructed in accordance with the present invention and illustrated as applied to a socket, as under certain conditions of use;

Fig. 2 is a similar view taken at right angles to Fig. 1;

Fig. 3 is also a side elevation of the hereindescribed wrench illustrating another condition under which the same may be used;

Fig. 4 is a sectional view, as on the line 4—4, Fig. 2;

Fig. 5 is also a sectional view, as on the line 5—5, Fig. 2.

Referring now in detail to the accompanying drawings, the numeral 10 designates the shank of the hereindescribed wrench. This is shaped for convenient application of the same to the hand of the user, and, therefore, tapers slightly from one end toward the other. At the latter point the end of the shank 10 is enlarged to provide a pair of parallel supporting arms 11, said arms being separated in order to form a notch 12 therebetween. The arms 11 are provided with outwardly-opening chambers 13 the inner ends of which communicate with contracted passages 14 while the outer ends of said chambers 13 are screw-threaded, as at 15, for a purpose to be presently described.

Arranged within the notch 12 is an engaging head which includes an elongated shank 16, which is cylindrical in cross-section, the ends of said shank 16 terminating in enlarged polygonal actuating plugs 17. These plugs are reversely tapered with respect to each other and are designed to be inserted into the socket with which the wrench is employed. By reason of the reverse tapering of the plugs 17 they may be alternatively used, in accordance with the direction of rotation to be imparted to the socket, as will later appear. At a point midway between the plugs 17 the shank 16 is enlarged to form an annular flange 18, and said flange is provided with a series of ratchet teeth 19 adapted to be engaged by the inner ends of oppositely-disposed reversely-arranged pawls 20. The pawls 20 are slidably mounted in the passages 14 and each is provided with an annular flange 21 of substantially the same diameter as the chambers 13. The pawls 20 are of sufficient length to extend through said chambers 13, and their outer extremities are received by perforated closure plugs 22 having screw-threaded engagement with the threads 15 of the chambers 13. Each of the plugs 22 is provided, at its outer face, with grooves or kerfs 23 for the reception of a suitable instrument, such as a screw driver, for rotating the plugs when introducing the same to and

removing them from the chambers 13. Encircling each of the pawls 20, and interposed between the flange 21 thereof and the screw plug 22 through which its outer end passes, is a coiled spring 24. The tension of these springs obviously is regulated by the adjustment of the screw plugs 22, and said springs serve to force the pawls 20 inwardly and to maintain the inner ends thereof in engagement with the ratchet teeth 19 of the flange 18. To effect such engagement between the pawls 20 and said teeth 19 each of the pawls has, at its inner end, a tooth 25 provided with an abrupt face 26 and an inclined face 27. The abrupt face 26 effects a locking engagement between each pawl and the teeth 19, thus causing the flange 18 to move with the pawls 20, while the inclined faces 27 of said pawls will permit the latter to ride over the teeth 19 to free the same from the locking engagement referred to.

Surrounding the engaging head is a pair of supporting blocks 28. The opposing faces of said supporting blocks 28 are provided with semi-circular notches 29 to permit the blocks 28 snugly fitting about and surrounding the cylindrical shank 16, and each of said blocks 28 is also provided with an interior semi-circular groove 30 for receiving the ratcheted flange 18 when the blocks are assembled upon the engaging head. It will also be observed that the blocks 28 are likewise provided with openings 31 arranged in alinement with the passages 14, said openings 31 receiving the inner ends of the pawls 30 and thus permitting the latter to engage the teeth 19. By reason of this construction it will be seen that the pawls 20 not only engage the ratcheted flange 18, but by reason of the inner ends of the pawls passing through the openings 31 the pawls form pivots or trunnions on which the supporting blocks 28 may be rotated. This permits the engaging head to be reversed, and each of the actuating plugs 17 may thus be presented to the socket with which the wrench is employed. This also provides for reversing the direction of movement of the ratcheted flange 18 it being apparent that when one of the plugs 17 is engaged with the socket the pawls will rotate the ratcheted flange in one direction, while by rotating the head to present the other plug 17 for engagement with the socket the direction of the ratchet teeth 19 will be reversed.

Extending longitudinally of the shank 10 is an elongated slot 32 in which is fitted a pair of handle bars 33. The adjacent ends of these bars 33 are enlarged and form offset heads 34, said heads being perforated for receiving a pivot pin 35 the inner end of which is seated in a drilled socket 36 formed at one side of the slot 32. The opposite end of the pin 35 extends into an opening 37 which is of greater diameter than the socket 36, said opening 37 being formed through the shank 10 at the other side of the slot 32. A screw-threaded locking plug 38 is fitted in the opening 37, and interposed between said plug 38 and the next adjacent handle bar 33 is a coiled spring 39 which presses the head 34 of said bar 33 toward the head of the other bar 33. These heads are adapted to be interlocked with each other, and to this end one of the same is provided with radial ribs 40 adapted to fit within radial grooves 41 formed in the contiguous face of the other head. The spring 39 exerts its pressure to maintain the ribs 40 seated in said grooves. The folded position of the handle bars 33 is illustrated in Fig. 2 wherein they appear as within the slot 32; when it is desired to use the same they are moved to the position illustrated in Fig. 1, it being obvious that the spring 39 will permit relative movement of the bars with respect to each other, and thereby permit the same either to be opened or closed.

The herein described wrench is designed for use with an assortment of sockets one of which is illustrated in Fig. 1 and designated by the numeral 42. The latter is illustrated as applied to a nut 43. When using the wrench one of the actuating plugs 17 is introduced into the socket 42, and by rotating the shank 10, the pawls 20 being normally urged by the springs 24 into engagement with the ratcheted flange 18, the plug and socket will be rotated. This, of course, assumes that the direction of rotation is such that the abrupt faces 26 of the pawls 20 contact the teeth 19. On the reverse rotation, however, of the shank the pawls 20 will ride over the teeth 19 and the socket 42 will remain stationary. If it be desired to reverse the direction of rotation of the socket 42 the wrench is removed therefrom; the engaging head is rotated 180° in order to present the other actuating plug 17 to the socket 42, and with the wrench now engaged with the socket 42, and with the shank 10 now rotated in a reverse direction, the socket 42 will be rotated in the reverse direction.

By the construction described the shank 10 may stand in relation to the engaging head as in Fig. 1, in which position it is in alinement therewith. or it may be swung at right angles thereto, or it may be moved at any position intermediate of the two described, as illustrated in Fig. 3. In the position illustrated in Fig. 1 rotation of the shank 10 will be more conveniently effected by swinging the handle bars 33 outwardly from the slot 32 and into the position illustrated in Fig. 1. In doing this slight pressure is exerted on the handle bars 33 to separate the heads 34 thereof, and when they are moved to the desired position the spring 39 will reassert itself, forcing the ribs 40 of the one member into the grooves

41 of the other, and thus maintain the handle bars at the desired angle in relation to each other.

I claim:

1. A wrench of the class described, comprising a shank, a ratcheted engaging head pivotally mounted therein, and a plurality of pawls carried by said shank for engaging with the ratcheted head, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

2. A wrench of the class described, comprising a shank, a ratcheted engaging head pivotally mounted therein and provided with reversely arranged socket-engaging members, and a plurality of pawls carried by said shank for engagement with said ratcheted head, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

3. A wrench of the class described, comprising a shank provided with oppositely arranged parallel arms, a ratcheted engaging head pivotally mounted between said arms, and a plurality of pawls carried by said arms and projecting inwardly therefrom for engagement with said ratcheted head, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

4. A wrench of the class described, comprising a shank provided at one end with a pair of parallel arms, a ratcheted engaging head arranged between said arms and provided with reversely arranged actuating plugs, and a plurality of pawls carried by said arms and projecting inwardly therefrom for engagement with said ratcheted head, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

5. A wrench of the class described, comprising a shank provided at one of its ends with a pair of parallel supporting arms, a ratcheted engaging head arranged between said arms, a plurality of supporting blocks also arranged between said arms and embracing said engaging head, and a plurality of pawls carried by said arms and projecting through said supporting blocks for engagement with said ratcheted head, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

6. A wrench of the class described, comprising a shank provided at one of its ends with a pair of parallel supporting arms, a ratcheted engaging head arranged between said arms, a plurality of pawls slidably mounted in said arms and projecting inwardly therefrom into engagement with said ratcheted head, and means for normally forcing said pawls into said engagement, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with a socket under reverse directions of movement.

7. A wrench of the class described, comprising a shank provided at one of its ends with a notch, an engaging head arranged in said notch, a ratchet carried by said head, and a plurality of pawls carried by said shank and projecting into said notch and into engagement with said ratchet, said pawls forming trunnions on which said engaging head rotates to position the head for engagement with the socket under reverse directions of movement.

8. A wrench of the class described, comprising a shank provided at one of its ends with an opening, a ratcheted engaging head arranged in said opening, a pair of supporting blocks surrounding said ratcheted head and serving to maintain the latter within said opening, and a pair of inwardly extending pawls carried by said shank and projecting into said opening, the inner ends of said pawls being extended through said supporting blocks for engagement with said ratcheted head at opposite sides thereof, and means for normally forcing both said pawls inwardly into such engagement.

9. A wrench of the class described, comprising a shank provided at one of its ends with an opening, said shank having oppositely disposed chambers arranged adjacent to said opening and in communication therewith, a ratcheted engaging head arranged in said opening, slidable pawls mounted in said chambers and having their inner ends projected into said opening for engagement with said ratcheted head at opposite sides thereof, springs arranged in said openings for normally forcing said pawls inwardly and into engagement with said ratcheted head, and means for retaining said springs within said chambers.

10. A wrench of the class described, comprising a shank provided at one of its ends with a notch, said shank being also provided at opposite sides of said notch with a plurality of chambers in communication with the notch, a ratcheted engaging head arranged in said notch, a plurality of inwardly extending pawls mounted in said chambers and having their inner ends projected into said notch for engagement with the ratcheted head, springs arranged in said chambers and normally forcing the pawls into engagement with said ratcheted head, and a closure plug arranged in each of said chambers for retaining the springs therein.

11. A wrench of the class described, comprising a shank provided with an elongated

ing an end portion to adapted to fit into [illegible] therein with the head projecting [illegible]

slot, socket-engaging means associated with said shank, a pin extended across said slot, a pair of handle bars arranged in said slot and pivotally mounted on said pin for relative movement with respect to each other, and means for maintaining said handle bars in relative positions of adjustment.

12. A wrench of the class described, comprising a shank provided with an elongated slot, socket engaging means associated with said shank, a pair of handle bars concentrically pivoted within said slot for relative movement with respect to each other, means for frictionally maintaining said handle bars in relative positions of adjustment, and yielding means for holding said bars against displacement from adjusted position.

13. A wrench of the class described, comprising a shank provided with an elongated slot, socket engaging means associated with said shank, a pin extended across said slot, a pair of handle bars arranged in said slot and capable of relative movement with respect to each other, the contiguous portions of said handle bars being enlarged to provide heads, said heads being perforated for receiving said pin whereby to pivot said bars thereon, radial ribs carried by one of said bars, the opposing face of the other bar being grooved for the reception of said ribs, said ribs and grooves effecting an interlocking relation between said bars to hold the same in relative positions of their adjustment, and a spring surrounding said pin and exerting its pressure to maintain the engaging portions of said bars against relative movement.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

MORTIMER J. FAIRCHILD.

Witnesses:

HELEN WEHRLE,

R. D. HOLLEMBEAK.

M. MILLER & A. D. BURG

Wrench

No. 1,302,197 April 29, 1919

DEFENDANT'S EXHIBIT "K"

Filed July 11, 1932.
G. H. Marsh, Clerk.

M. MILLER & A. D. BURG.

WRENCH.

APPLICATION FILED MAR. 16, 1918.

1,302,197.

Patented Apr. 29, 1919.

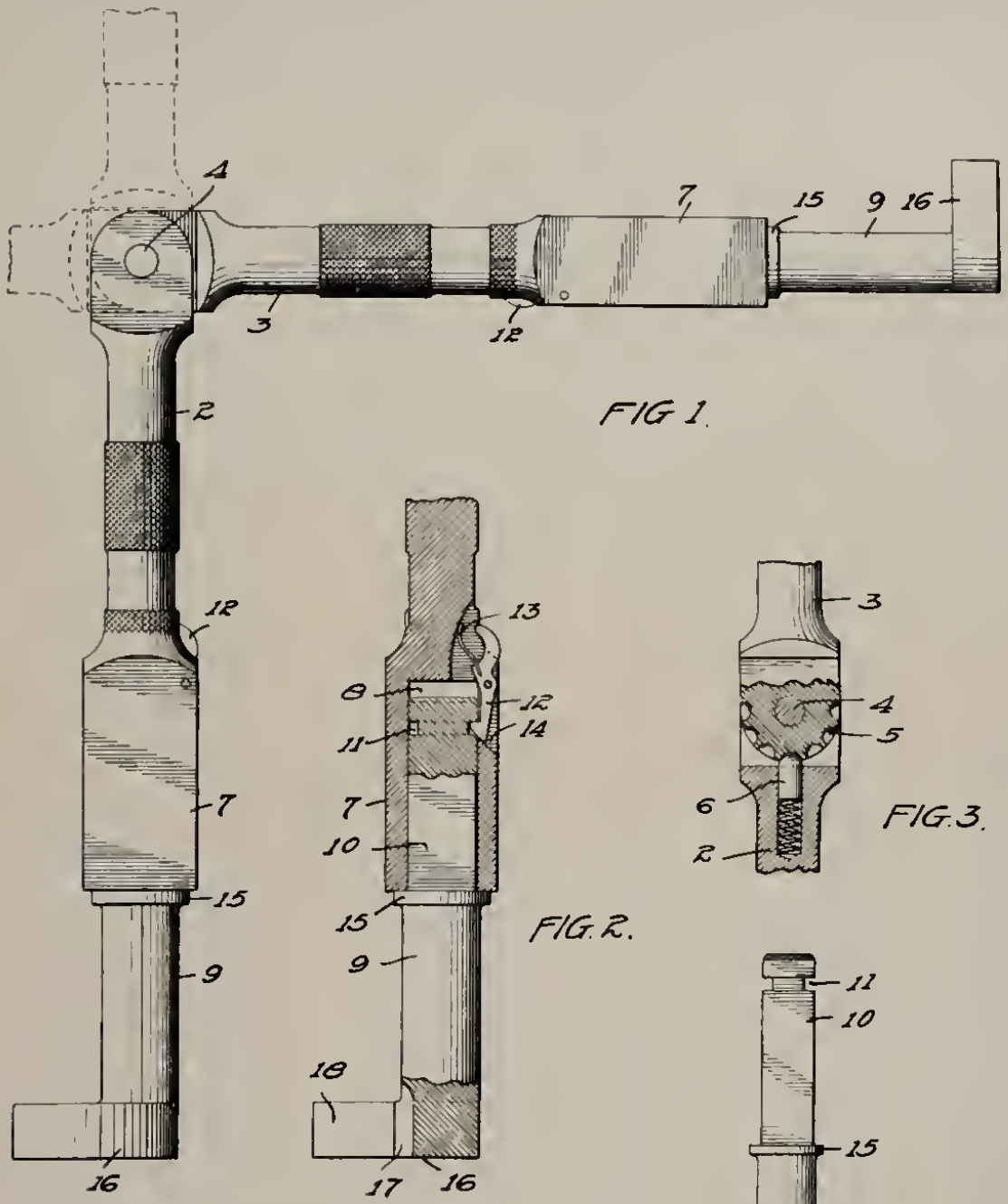


FIG 1.

FIG. 2.

FIG. 3.

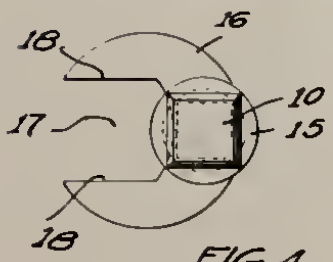


FIG. 4.

FIG. 5.

WITNESSES

M. R. M. Shanio

E. A. Paul

INVENTORS

MELCHIOR MILLER

ALFRED D. BURG

BY Paul & Paul

ATTORNEYS

UNITED STATES PATENT OFFICE.

MELCHIOR MILLER AND ALFRED D. BURG, OF LE MARS, IOWA; SAID ALFRED D. BURG ASSIGNOR TO L. J. BURG, OF ST. PAUL, MINNESOTA.

WRENCH.

1,302,197. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed March 16, 1916. Serial No. 84,528.

To all whom it may concern:

Be it known that we, MELCHIOR MILLER and ALFRED D. BURG, citizens of the United States, residents of Le Mars, county of Plymouth, State of Iowa, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of our invention is to improve the wrench shown and described in a pending application for Letters Patent of the United States, filed by us on the 2nd day of December, 1915, Serial No. 64,725, to the end that any desired number of wrench jaws adapted for nuts or bolts' heads of various shapes and sizes can be used with a single shank, thereby effecting a considerable saving in the cost and weight of a wrench equipment or set.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a view of a wrench embodying our invention,

Fig. 2 is a sectional view through the shank of the wrench, showing the manner of mounting a jaw thereon,

Fig. 3 is a detail sectional view of the joint between the two sections of the wrench,

Fig. 4 is an end view of one of the jaws removed from the wrench shank,

Fig. 5 is a side view of one of the jaw shanks and its head removed from the wrench shank.

In the drawing, 2 and 3 represent the shanks and hand grips of the wrench. The abutting ends of these shanks are pivotally connected to one another by a pivot pin 4 and one of the shanks has ratchet teeth 5 formed therein in position to be engaged by a spring-pressed pin 6 that is mounted in the other shank, thereby forming a ratchet connection between the two shanks for holding them in alinement with one another or in an angular relation, as may be desired. Each shank is provided with an end portion 7 having a longitudinal socket 8 formed therein, said socket being polygonal in cross section. 9 is a jaw shank having an end portion 10 adapted to fit into the socket 8 and provided with an annular groove 11. A latch 12 is mounted to enter said groove and is normally held therein by means of a spring 13 fitting within a recess 14 in the shank of the hand grip. The shank 9 preferably has a shoulder 15 formed thereon which contacts with the end 7 for limiting the insertion of the shank 9 into the socket 8 and insuring the proper register of the groove 11 with the locking latch.

At the outer end of the shank 9 we mount a jaw head, preferably in the form shown, consisting of a disk-like member 16 arranged in a plane at right angles substantially to the longitudinal axis of the shank 9 and mounted eccentrically with respect thereto. A recess 17 is provided in the head, extending inwardly, preferably to a point near the shank. This recess has opposing faces 18 in planes parallel with the longitudinal axis of the shank and adapted to bear on the nut or bolt-head that is inserted into the recess. This jaw head may be made in various sizes and its shape may be modified, if preferred, and it is preferably rigidly mounted or secured on the jaw shank, the recess 17 therein being adapted for different sizes and shapes of nuts or bolt heads.

The sockets 8 are of different sizes, and the shanks 9 fitting therein also vary in cross sectional area and have heads of different sizes thereon, so that with a single shank or handle the tool may be adapted for use as a large or a small wrench. Generally it is necessary to provide wrench shanks of different length and jaws of different strength and weight to adapt the wrench for use on large or small nuts or bolts, while our invention contemplates the combination of a large and a small wrench in one and a variety of jaws for both the large and the small wrench, to adapt the tool for all requirements of a tool of this kind.

We have designated the two sizes of shanks by the same reference numeral, as they are preferably formed in substantially the same way, the difference consisting generally in using a smaller gage of jaw shank and jaw head therefor at one end of the wrench than at the other.

By providing an annular groove 11 in the end 10 we are able to insert the shank 9 therein with the head projecting in either

direction, according to the convenience of the user of the tool, and as these shanks all correspond substantially in size, we may provide a series of the shanks 9 and the heads thereon with different sizes of sockets 17, so that the user of the wrench can have a sufficient number of jaws of different sizes to fit all the different sizes of nuts and bolts on which he may wish to use the tool.

It often happens that the user of this tool wishes to rotate it when the shank members are in line with each other and when one shank and the head thereon can be used as a hand grip for operating the other shank, as, for instance, when it is found necessary to operate the tool through the spokes of a wheel or in some position on the car where there is no room to move the tool with one shank member at an angle to the other.

Each wrench, when sold, will comprise the hand grip shanks, pivotally connected to one another, and a series of jaw shanks having claw shaped heads thereon adapted for engaging nuts and bolts of various shapes and sizes.

In various ways the details of construction herein shown and described may be modified and still be within the scope of our invention.

We claim as our invention:

A wrench comprising hand grip shanks having abutting ends hinged together, the opposite ends of said shanks having longitudinal sockets formed therein, jaw shanks fitting within said sockets and having means for holding them against rotary movement and having heads formed thereon and provided with jaws and gripping faces in planes parallel substantially with the axes of said jaw shanks and eccentric with respect thereto, the jaws of said shanks being of varying size to adapt the wrench for nut and bolt heads of different sizes, each hand grip shank being mounted for angular adjustment with respect to the other shank, or for alinement with each other, and either jaw shank and head thereon forming a hand grip for rotating the tool and the other jaw shank when said hand grip shanks are in line with each other.

In witness whereof, we have hereunto set our hands this 9th day of March 1916.

MELCHIOR MILLER.
ALFRED D. BURG.

Witnesses:
J. T. KEENAN,
K. STROUSE.

(Testimony of M. B. Pendleton.)

Patent to Miottel, dated February 1, 1916, No. 1169987, marked Defendant's Exhibit "G";

Patent to Miller & Berg, No. 1175973, dated March 21, 1916, marked Defendant's Exhibit "H";

Patent to Baltzley No. 1209658, dated December 26, 1916, marked Defendant's Exhibit "I";

Patent to Fairchild, No. 1292285, dated January 21, 1919, marked Defendant's Exhibit "J";

Patent to Miller & Berg No. 1302197, dated April 20, 1919, marked Defendant's Exhibit "K";

Defendant then offered, and there was received in evidence, the file wrapper showing the proceedings in the U. S. Patent Office relating to the Eagle Patent. The file wrapper was marked Defendant's Exhibit "L". Defendant's counsel having supplied the court for the court's convenience copies of the patents introduced, chronologically arranged, and a copy of the file wrapper pointed out to the court that only the patents to Mandeville (Defendant's Exhibit "C"), to Helstrom (Defendant's Exhibit F), to Miottel (Defendant's Exhibit "C") and the patent to Baltzley (Defendant's Exhibit "I") were found by the patent office.

W. E. KELLY

was called as a witness on behalf of the Defendant and testified that he lives at Milwaukie, Oregon, that he was an architect, that his experience with mechanics consisted of a course in engineering which he took when he was quite young, that he had made a great many patent drawings and had taken out a few

(Testimony of W. E. Kelly.)

patents of [61] his own; that he had examined the Edmands Patent (Defendant's Exhibit "D"). Defendant's Exhibit "AA", a model of the Edmands wrench and "BB", a wrench manufactured by the defendant were offered and received in evidence. The model of the Edmands' wrench (Exhibit "AA") was admitted after it was explained that a portion of the handle of the model had been cut away for the purpose of showing the operation of the wrench and to the extent of the portion cut away the model was not a true representation of the Edmands' wrench.

The witness pointed out on the model of the Edmands' wrench the points identified in the Edmands' patent; that (a) represented the handle or the stem of the wrench, (a) having a bifurcated head.

"Mr. RAMSEY: May I interrupt. One exception to that model that my attention has been called to, that does not have a cross handle (c) as the Edmands does.

A. That is just a part that would come through.

Mr. GEISLER: We have that right here, and just omitted as a matter of convenience; has no bearing on it; makes a 'T' of it; you can put that in if you like.

COURT: Admit it all as part of the exhibit.

Mr. RAMSEY: The patent doesn't call that removeable. With that exception, that the patent does not note that is a removeable pin; as far as the patent shows, it is fixed.

COURT: Proceed.

A. You were asking about (a) which is the handle, and which has a bifurcated head through which the pin is placed that supports the socket, the socket support pivoted about

(Testimony of W. E. Kelly.)

the pin, but the socket support is notched, enabling one to remove the socket by means of removal of the support.

Q. The socket is removable, as I understand?

A. The socket is removable; just another means of removing; it slips over the pin rather than over the socket support; it has one less part than the one we have been talking about.

Q. Which is that? One less part than what?

A. The socket support is all one piece.

Q. And you are referring to what when you say the one we have been talking about? What patent do you mean talking about? The Eagle patent?

A. The Eagle patent; one less part."

The witness was then asked to compare the Edmands patent with the Eagle patent and to point out the same features common to both patents. He said:

"A. The fact that this is pivoted about a pin is similar; the only difference is the means of removing the socket.

Q. To make the socket support there, which is pivoted in the shank handle, removable instead of a fixed piece, state whether you would consider that a mere mechanical expediency, or not? [62]

A. It would just be a mechanical difference; there is very little advantage one way or the other whether it is a fixed pin or removable as this is; as far as its action in actual work is concerned, this will do anything the other will do.

Q. And that removable socket there and the lug in which it is attached to the bifurcated end of the handle is in one piece? A. Yes.

Q. Would there be any mechanical advantage in making

(Testimony of W. E. Kelly.)

these two parts, which are now in one, in two parts; I mean in making the lug and the socket in two separate pieces instead of in one piece? Would there be any mechanical advantage in that?

A. I don't see any advantage at all; this does anything the other will do.

Q. Now to substitute for that female socket there, or have a socket, a male connector, which itself is to receive one of the series of sockets, would you consider that as any great advantage over that, or any advance over the construction by Edmands?

A. Making an adapter to put in place of this solid, that would make it possible to use any standard set of sockets.

Q. Would you consider that anything more than a mere mechanical expedient?

A. It would have an advantage inasmuch as this part could be very easily changed in case wear would take place.

Q. Which would have an advantage, the structure you have in your hand?

A. The one I have in my hand would have an advantage because it is open and can be easily removed; the other might wear, of course.

Q. So in the Edmands construction you find an advantage in that the socket itself may be removed and substituted by another socket which is not so much worn in service? A. It is more easily changed.

Q. State whether or not it is a common expedient and an advantage to have a tool chest comprising a single wrench tool or a series of sockets in different sizes?

(Testimony of W. E. Kelly.)

A. Yes, it is a common practice.

Q. Now if you had that Edmands tool, and in connection with that a series of replaceable sockets adapted to different work, state whether or not you would consider that as an expedient tool chest.

A. Yes, the Edmands—this design of wrench would be quite a complete set yes, if you had a full number of sockets to go in it.

Q. Now comparing the Eagle wrench with the Edmands wrench, state whether you find in the Eagle wrench any advantage in construction or use over the Edmands wrench; in the Eagle over the Edmands, the question is.

A. Not with the possible addition of this adapter, I don't see any advantage; I believe it is fully as good as the Eagle.

Q. State whether or not an adapter is a well known mechanical piece.

A. Yes, every mechanic knows what an adapter would be.

Q. Now there is one difference in the Eagle wrench with respect to the Edmands in that the Eagle shows a male connector on which the socket is to be placed instead of having the socket as the connecting piece in one, as in the Edmands. I call your attention to the patent of Fairchild, 'J'. I hand you herewith a model and ask you to compare that with the Fairchild patent,—'M'. Please compare that model with the Failchild patent, No. 1,292,285, and state, after your comparison whether that model represents the Fairchild patent; just explained. [63]

(Testimony of W. E. Kelly.)

A. Outside of the style of the handle it is an exact duplication.

Q. And it however omits the ratchet part?

A. The ratchet part, that is omitted, that part of the handle.

Q. But it does include that part (17) in Fig. 2, for instance, or in all the figures of the Fairchild patent drawing.

A. This squared shank.

Q. The squared shank, yes.

A. It has two, instead of one.

Q. With squared shank. Do you find that squared shank as suggestive of a part in the Eagle construction?

A. Yes, sir.

Q. State whether or not that is the equivalent of the Part (4) of the Eagle patent drawing?

A. In principle it is the same.

Q. It is intended to receive a socket like (42) in the Fairchild drawing? A. Yes, it does.

Q. With the Fairchild patent before you, and with the Edmands patent before you, state whether or not you would consider it difficult for a mechanic to provide means in a wrench for holding the movable socket support in different positions, I mean a spring friction pin, or its equivalent?

A. There is no provision made to hold the Fairchild, where there is in the Edmands. The support in the Edmands is very similar to the——

Q. Now if I asked you to design a wrench which had socket holding piece, and to provide means for holding that in different positions, angular positions, with the knowledge

(Testimony of W. E. Kelly.)

of these two patents before you, would you find any difficulty in making such a wrench? A. No."

The defendant introduced Defendant's Exhibit "M", a model of the Fairchild wrench, which was admitted into evidence by the court to illustrate the witness' testimony concerning the parts of this wrench which compared with the Eagle wrench, it being explained that the model was not an exact duplication of the Fairchild wrench, the ratchet mechanism having been omitted and a portion of the wrench having been cut away in order to expose its operation.

There was offered by the defendant and received in evidence Exhibit "AA" showing how the Edmands wrench is made and Exhibit "BB" representing two wrenches which were manufactured by the defendant.

The witness was then asked to identify a piece which the witness identified as an adapter for the Fairchild patent. He was asked to look at said piece and to compare it with the Edmands patent and to state whether or not said piece could be substituted in place of the socket and stated that said piece would be an adapter for any standard socket and used on the Edmands patent. Said piece was then offered in evidence and marked Defendant's Exhibit "N" for identification. [64]

"Mr. RAMSEY: What is the purpose of this?

A. That is an adapter for Edmands.

Mr. RAMSEY: Why is it introduced as an exhibit, what is it supposed to show?

Mr. GEISLER: Just the part being removable; that socket being removable from the Edmands wrench, this adapter may be put in place of it, in order to put a socket

(Testimony of W. E. Kelly.)

on this. I also have a socket here of some kind, I think will probably fit it. I will put the socket on that, and that explains how it could be used.

Mr. RAMSEY: Is this a piece which the witness has designed, or is this a piece which is supposed to illustrate the prior art? What is the purpose of introducing this piece?

Mr. GEISLER: Yes, it illustrates in a way the prior art, it shows what can be done; mechanical expediency.

Mr. RAMSEY: I object to the introduction; has no basis in the prior art; I will not object as a piece which this witness might have invented to be used with the Edmands wrench, but unless a basis is laid for this as being old in the prior art, I object strenuously to the introduction of it as an exhibit.

COURT: As I take it, there is no claim at the present time that it was used with that. This is simply to be used, possible mechanical adaptation, in accordance with the witness's testimony, simply a mechanical expedient. Of course the weight of that testimony is a different proposition.

Mr. RAMSEY: I asked council if it was an example of the prior art; he said something of prior art; if an example of prior art, I object, but if it is a device which he has devised for use with the Edmands wrench, and something of his own invention, then we don't object to it.

COURT: I don't think any basis so far, except adaptation of possible uses in the prior art.

Mr. GEISLER: That is all I am claiming for it.

COURT: On that basis, it is admitted. (as Defendant's Exhibit M)

(Testimony of W. E. Kelly.)

On Cross-examination

the witness Kelly testified that he was a practicing architect; that he was a graduate steam engineer having completed a one-year steam engineering course at Brooking College, South Dakota; that his experience in the automotive tool industry consisted of making catalog drawings, illustrations and patent drawings for special tools. He testified that he was not an employee of defendant P & C. Tool Company and that his experience with tools was gained in connection with work for the defendant company. He testified that he had had no practical use of a wrench of the character of the Eagle wrench except on his own car; that he had never worked at the trade of an automotive mechanic. Asked to explain what he meant on his direct examination as constituting a standard set of sockets, the witness testified that he referred to the type that is ordinarily used; that most manufacturers have a standard type of socket; that a standard set of sockets comprise removable pieces with a [65] full set of sizes adapted to fit standard nuts; that a socket has a non-circular aperture with a base on which is a female socket to fit a standard handle; that it consisted of a metal shell with a bore extending through it. The witness testified that when he compared the Eagle wrench and the use of the Edmands wrench his opinion was based entirely upon theory and not upon the practical use of the wrench. He further testified as follows: [66]

"Q. You say that every mechanic has a set of standard sockets in his kit.

A. I believe yes, the average automobile mechanic has a standard set of sockets.

Q. Now if you provide no adapter with the Edmands patent, can you use the Edmands patent as is shown, with a standard set of sockets? I think the adapter—you spoke of

(Testimony of W. E. Kelly.)

an adapter as something which every mechanic—with which every mechanic is familiar, or is usually familiar.

A. The word adapter would be very familiar to any mechanic, yes.

Q. Which adapter, as you speak of it, which is the double male element, as one form of adapter, is a term with which a mechanic is familiar?

A. That wouldn't be a double male element, it would be hook and male socket.

Q. Your last answer, then, would refer to Defendant's Exhibit 'N'?

A. Yes.

Q. Do you claim that Defendant's Exhibit 'N' is a standard unit with which the average mechanic would be familiar, or is that a special tool which has been specifically devised for use with the Edmands wrench?

A. I couldn't say whether it was standard or not.

Q. Have you ever seen one besides that individual one marked Defendant's Exhibit 'N', in your experience?

A. No, I haven't.

Q. Now referring to the Edmands drawings, which are Defendant's Exhibit AA, will you refer to the drawings please, and have you a wrench before you also?

A. No.

Q. Here it is, Exhibit 'AA'. Is it a common practice for a tool to have a handle?

A. Every tool has a handle.

Q. Is it common to have a pivot pin in a tool?

A. Yes.

Q. Is it common to have a nut engaging socket head in the wrench?

A. Yes.

Q. Then all of the parts noted in the Edmands are old

(Testimony of W. E. Kelly.)

devices of themselves, except for their specific form?

A. Yes, they are old.

Q. In answer to counsel's question with regard to the value, from the use standpoint, you said that the Edmands could do anything that the Eagle could do. When I speak of Edmands I refer to the device shown in the patent drawing of the Edmands patent; and when I speak of the Eagle I speak of a device shown in the patent drawings of the Eagle patent. That was your answer?

A. Yes.

Q. Will it accommodate a standard socket without the addition of some other device?

A. Not without the adapter."

The witness testified that he had been told that a wrench with a hinge handle wore at its pivot point, although he had never worn out any wrench himself. He stated that any wrench, including the Eagle wrench, if used continuously on automobile work for eight to ten hours a day would likely wear out in a week's time, although if it was not used continuously but intermittently it might last [67] for ten years. He said:

"A. I say I have seen assembly lines where men were working rapidly and every minute with their wrench, where it would be possible for the wrench wasn't too hard, possible that any wrench would wear out in a week's time. I don't know that is possible, no. It is all a guess; but comparatively speaking the time or ages a wrench will last is impossible to guess.

Q. Then it is merely an estimate or guess?

A. Absolutely.

Q. You know of no actual experience?

A. No."

(Testimony of W. E. Kelly.)

The witness stated that he had never seen the Edmands wrench or the Fairchild wrench in use in any place. He further testified:

"Q. There is just one other question in regard to that Edmands wrench. Would you arrange the head at right angles to the handle, exactly at right angles, is that it?

A. Yes, that is right angle.

Q. In that position that head is not removable?

A. In the other position it is.

Q. But in the other position it is removable?

A. Yes.

Q. Is the wrench used—is a flex wrench of which the Eagle patent is the original—is the flex wrench used in both positions, with the handle at right angles at one side of the pivot, and also in use with the handle at the opposite side?

A. Is that what you mean? (Illustrating)

Q. Yes. Do they use this flex handle at full normal or right angle position on each side of the pivot?

A. Yes."

On Re-direct examination

witness Kelly testified:

"Q. State whether or not you would consider it a difficult mechanical expedient to have closed that slot so it couldn't come off, the slot of the Edmands? The socket holder, or socket?

A. Well there is no means of closing it now; of course you could disturb the lock and keep it on.

Q. Would that be a difficult thing to do?

A. No."

(Testimony of W. E. Kelly.)

On Re-cross examination

the witness referring to his testimony that it would not be a difficult mechanical expedient to close the slot of the Edmands wrench so that the socket holder would not become detached, testified:

"Q. If you did that wouldn't it make that head a solid part and a non-removable part handle?

A. Yes.

Q. And it would destroy its utility as a handle with a movable head, wouldn't it?

A. Yes." [68]

R. N. SHINN

was called as a witness on behalf of the defendant and on

Direct examination

testified that he resided in Portland, Oregon, was a machinist by trade and had been following that trade for approximately 28 years; that his training consisted of an apprenticeship of six years and taking various little courses with mechanical engineers at an apprenticeship training school; that he was able to read patent drawings. He further testified:

"Q. I will ask you to look at the Edmands patent, Defendant's Exhibit D, and I would ask you to look at Defendant's Exhibit AA, as a model of the Edmands wrench; did you hear the testimony of Mr. Kelly while on the stand?

A. Yes.

Q. State whether or not that interpretation of the Edmands patent drawing with respect to that exhibit you consider to be correct?

(Testimony of R. N. Shinn.)

A. Yes, it is; same as I have used with the Edmands patent myself, and looks very much like it.

Q. What advantage, looking at the Eagle patent, which is Plaintiff's exhibit 2—compare the Eagle patent with the Edmands patent, and state whether you find any advantage in the Eagle patent over the Edmands patent, so far as you——

A. No, I wouldn't say there was very much advantage, for we use the same thing on the Edmands as we have on the Eagle.

Q. I want to know whether you find any advantage either in use or construction?

A. Any difference in use and construction?

Q. Yes, whether you find any advantage in the Eagle patent over the Edmands patent.

A. I don't think so.

Q. Now just look at the Fairchild patent, defendant's exhibit J, and the model of the same, defendant's exhibit M. Now with the Fairchild patent before you and the Edmands patent before you, would you find, as a mechanic, any difficulty in providing in a wrench a socket support, a male socket support or square head, as they call it, as a means for holding that socket support in different angular positions with respect to the nut?

A. No trouble whatsoever.

Q. What would you think of a mechanic who found difficulty in making such a wrench?

A. I wouldn't call him a mechanic.

Q. State whether or not you find any advantage in the Edmands construction over the Eagle construction?

(Testimony of R. N. Shinn.)

A. Edmands over the Eagle; I don't see there would be any great advantage, only the cost of manufacture of the Edmands might be a little cheaper.

Q. Otherwise just about on a par?

A. I think so.

Q. Now I call your attention to the spring controlled pin (j) in Figure 1, of the Edmands patent. State whether or not you find the same piece in the Eagle patent, and if so refer to the piece by number.

A. Yes, it is (8) in the Eagle, and as you say, it is (j) in the Edmands. [69]

Q. Do you consider it as a good mechanical construction to use a pin as (8) shown in the Eagle patent, for the purpose of holding head (4) in different positions?

A. Well it is good for the time being, but it is more susceptible to wear than other devices.

Q. What device would you substitute for it?

A. Such as a ball, is better.

Q. I call your attention here to the construction in Defendant's Exhibit 'BB', to the means for holding that double socket support in different angular positions. Would you consider that a superior construction over the pin?

A. I would.

Q. Explain why?

A. The pin is more liable to be corroded or from dirt, grit and sand; they are liable to stick and hold up the compress the spring, and doesn't have any means to recompense that wear, whereas the ball does have means, by the ball coming out further as it wears.

Q. Was that construction such as shown there, of spring controlled friction ball, known some time back?

(Testimony of R. N. Shinn.)

A. Oh yes, as far as my experience runs, I think.

Q. Would you consider it as having been well known in 1920?

A. Further back than that.

Q. State whether you would consider the Eagle patent in view of using spring controlled pin instead of spring controlled ball, as an efficient wrench?

A. That would lessen the utility of the wrench?

Q. Is there any means provided in the Eagle wrench for holding the socket on the socket support (4)?

A. No, there is none shown.

Q. He refers in his specifications that he proposes to have a tight fit, and hold it by friction. Would you consider the holding of a socket on the socket support by friction, as an efficient means of connecting the parts?

A. No, I wouldn't, not unless there was a spring friction.

Q. What means would you suggest for holding the socket firmly but removably in place?

A. The same as shown here, this ball.

Q. Mention the exhibit to which you refer.

A. Exhibit 'BB', ball clutch."

Witness Shinn, on

Cross-examination,

referring to Defendant's Exhibit "BB" testified as follows:

"Q. Referring to that ball snap on the socket support, would you think it would amount to invention to insert one of those ball snaps?

A. Do I think what?

Q. Do you think it would amount to invention to insert

(Testimony of R. N. Shinn.)

one of those ball snaps on your socket support, to hold the socket in place?

A. It is an improvement; I think it would be.

Q. Would it occur to an ordinary mechanic?

A. It might occur to him, yes.

Q. Would it? Would a mechanic think of that, or would he not think of it?

A. Some would.

Q. What would you think of an ordinary or average mechanic skilled in the art, that is, in the art of wrench manufacturing, would that occur to him or not?

A. I believe it would. [70]

Q. Would a socket stay in place on the socket support without a ball snap if there was a relatively tight fit or not?

A. Would stay for a short time, and then would be falling off all the time.

Q. But it would operate for a time, you think?

A. For a time.

Q. And you think after a while, after a period of wear, it would loosen?

I. I know it would."

On further cross examination the witness testified that at the time of the trial he was temporarily employed as a machinist at the Steel Tank & Pipe Company, that he had never worked in a wrench factory, but he had worked in tool rooms where wrenches were made in different railroad shops and auto parts companies in Peru, Indiana, (Peru Automobile Parts Company) and at Kokomo, Indiana (Haines Automobile Company). The witness testified that while he was employed at the Haines Automobile Company at Kokomo, Indiana, he had used a wrench substan-

(Testimony of R. N. Shinn.)

tially identical with the wrench shown by the drawing of the Edmands wrench (Defendant's Exhibit "D") but that the slot had been closed and the socket support converted into a male connection for use with socket; that he used this wrench most of the time while he was employed by Haines Automobile Company; that he did not know how many such wrenches were used when he was employed by that company but guessed there may have been twenty-five used; that the employees of this company made the wrenches themselves; that the wrench was not called the Edmands wrench, but was called a hinged wrench; that he did not know who manufactured the wrench; that this wrench was not widely sold at that time; that since that time he did not know if many Edmands wrenches had been sold; that he had used a similar wrench when employed at the Model Gas Engines Works where he was employed after leaving the Haines Automobile Company; that he never took any of the wrenches described; that he never owned one; that the wrench he was referring to was pretty much like the Edmands wrench; that it may have deviated a little bit from the Edmands wrench but the principle involved was the same with the exception [71] that the slot was closed so that the socket support would not come off. He testified that the Peru Automotive Parts Company was not a tool manufacturing concern but was engaged in manufacturing different parts of an automobile, but that wrenches were made in the tool room of that concern. He further testified:

"Q. Referring again to the Edmands patent, which is Defendant's Exhibit 'D', you are a tool maker by trade?

A. Not expert tool. I have worked at the tool trade, but not for some time.

Q. Are you familiar with cost accounting, as regards tools?

(Testimony of R. N. Shinn.)

A. No, sir.

Q. Have you ever manufactured tools for the trade where cost accounts were kept?

A. No, I don't think I have.

Q. Well, when you were comparing the Edmands to the Eagle, you were speaking of the cost of manufacture of the wrench, and stated as a conclusion that it was probably less expensive to manufacture the Edmands wrench than the Eagle wrench. What did you base that conclusion on? Is that an estimate or guess, or is that based upon any experience of yours?

A. Experience I would go by; I say we made wrenches, and I would say just as cheap, might be a little bit cheaper to make the Edmands.

Q. Now in reference to that statement, you mean in time, expense of materials used, or both?

A. Time expense.

Q. Time expense. Now referring to the part (b) in the Edmands, and the part (g) in the Edmands, which are integral, that is with the socket head and the curved shank, how would that be manufactured? What tools and what time would it take to make one of these heads and shanks?

A. Tooling up would be the greatest job.

Q. What do you mean by tooling up?

A. Getting your tools to forge this out.

Q. What sort of tools would you use?

A. Drop forge tools and dies.

Q. Drop forging?

A. Yes.

Q. How would you make the element (3) in the Eagle patent, which is the bifurcated portion of the shank. Would

(Testimony of R. N. Shinn.)

that be drop forging, or would that be work under the hammer, or how would that be manufactured?

A. It would be drop forged.

Q. How would the element (4) be manufactured?

A. Well that could be milled out, or could be drop forged too. Could be milled out with a rolling machine.

Q. What is the respective cost with regard to the making of the element (4) and the cost of making elements (b) and (g) of the Edmands, one being drop forged, and the other being a milling operation?

A. What would be the entire cost?

Q. What would be the unit cost on each one of them?

A. I couldn't give you that, for I never kept any cost account. [72]

Q. Well you say in your experience you believe it would be cheaper. What is the basis of that conclusion?

A. Well, I believe it is easier to tool up for it. I couldn't give cost account, because I never kept cost.

Q. Speaking of tooling up, how much would it cost, and what would be the time, or what would be the expense of tooling up for manufacturing head (b) and head (g) of the Edmands?

A. Well I couldn't give that offhand. I would have to do quite a little thinking on that, and study.

Q. You gave us a conclusion it would be cheaper. What was the basis of that?

A. I say would probably. I said I believed would be cheaper tool up for it.

Q. Then you believe would be cheaper to tool up, as you call it, by making dies for drop forging, than it would be

(Testimony of R. N. Shinn.)

to set up a little head (4) in a milling machine. Is that what you wish the court to understand?

A. No, sir.

Q. So by reference to that, would be much more expensive to tool up for heads (b) and (g) than for the element (4)?

A. It would cost more to tool up for the drop forge, but you have sockets to figure on the other one.

Q. What do you mean by sockets?

A. Sockets used on these wrenches.

Q. Then you think that it would be quite an expensive operation, and that these ordinary sockets are quite expensive devices?

A. What do you mean by quite expeusive?

Q. How would cost of socket (10) in the Eagle, compare with the head (b) in the Edmands in cost of production?

A. Well these Edmands would cost most, because you take the other part to put in with it.

Q. Then you think the cost of manufacture of (b) and (g) as an integral structure, would be less than the cost of Head (4) and socket (10) of the Eagle?

A. I believe it would, yes.

Q. Are those sockets such as (10), and which you refer to as ordinary sockets, aren't they sold in quite large numbers?

A. They are.

Q. Aren't they quite inexpensive?

A. Well what do you mean by quite inexpensive?

Q. What does a set of sockets cost?

A. It is according to how many sockets you want to get in a set.

(Testimony of R. N. Shinn.)

Q. What is the ordinary set, then?

A. An ordinary set might include half a dozen, and might include twenty.

Q. We will take a set of six. How much is the cost of a set of six sockets?

A. I haven't bought any; I don't know.

Q. You don't know what the cost of sockets is?

A. They keep changing right along, I suppose they do; I don't know what the cost is."

The witness testified that he did not buy sockets, that he had never bought any wrenches of the type of the Eagle Wrench or of the type exemplified by Defendant's Exhibit "BB"; that he had not used tools for six or seven years; that he did not know when [73] tools of the type illustrated by Defendant's Exhibit "BB" and Plaintiff's Exhibit "5" were first put into use; that in 1916 or 1917 when he had a shop in Dakota, he and his employees used a device similar to the Edmands wrench; that if he remembered correctly the head on the wrench referred to was substantially the same as character (g) of the Edmands wrench adapted to take a series of sockets such as (k) around its periphery; that the details of this wrench were not clear in his memory. He further testified:

"Q. You spoke of changing the Edmands wrench so that it wolud be a device such as the Eagle shows. You spoke that you could do that easily?

A. We did do it, yes sir.

Q. You made a device such as the Eagle shows?

A. We made a—instead of having a female socket in the Edmands, there was the same kind formed only it had a male connection to fit other sockets.

(Testimony of R. N. Shinn.)

Q. You rebuilt to—how many of these did you rebuild?

A. Well I don't know; as I say, the boys made them themselves; some of them made in the tool room.

Q. Just a few in this Haines. Did you make any other ones, except in this Haines factory?

A. I think so.

Q. Where?

A. I think in the Model Gas Engine Works in Peru, Indiana.

Q. Have you any of those at the present time, or were they left on the job?

A. A long time ago.

Q. Probably all been forgotten by this time, except in your own mind.

A. Yes, sir, I haven't used that for—I don't know particularly that type; have used lots of them in our own shops, but always change the tools anyway, if they don't suit us."

The witness testified that he was not an employee of the defendant P & C Tool Company but had known Mr. Peterson, the president of the defendant company for not more than a year; that he had met Mr. Peterson at the factory of the defendant company where he went after seeing some tools of the defendant company owned by friends; that he talked with Mr. Peterson concerning the designing of tools in which he was interested; that he was not in the designing business but friends among mechanics had asked him to design tools; that this avocation might be amateur, but that he had built pretty good wrenches. The defendant offered and there was received in evidence Defendant's [74] Exhibit "O", a model of the Eagle wrench with a part cut away.

(Testimony of R. N. Shinn.)

The defendant offered and there was received in evidence defendant's Exhibit "P" consisting of an adapter and socket which could be used with the Edmands female head or socket holder to convert the same into a male socket.

The witness

R. N. SHINN

was recalled by the defendant and on

Re-direct Examination

testified:

"Q. Now Mr. Shinn, please look at the claim in the Eagle patent, and I call your attention to Plaintiff's Exhibit 2, which is the Eagle patent, and calling your attention to the last element and the means carried by the handle, and engageable with the rounded end of the socket support to hold the latter in different positions.

Q. That is the last element of the Eagle patent. You will find it on Line 93, Page 1, Line 93 of the Eagle patent. Now please turn to the Helstrom patent, which is Defendant's Exhibit 'F'. Now I call your attention to number (30) in the Helstrom patent, and will ask you to state whether or not that also shows a means for holding the movable part of the wrench in position.

A. It does.

Q. However, it does not hold it in different positions?

A. No, sir.

Q. In only one position.

A. In position; it revolves one way only. It is in different positions there.

Q. Now I call your attention to the means provided, identified by (j) in the Edmands patent, Defendant's Ex-

Testimony of R. N. Shinn.)

hibit 'D' you may state whether or not that provides a means——

* * * * * * * *

Q. That is the Edmands patent. Look at part (j) there, and state whether or not that shows a means for holding the movable member (b) in different positions?

A. It does.

Q. Now please look at the patent to Miller & Burg, No. 1,175,973 being Defendant's Exhibit 'H', and look at the Figure 1 there in particular, and state whether or not you will find there a means shown for holding the relatively movable member in different positions?

A. Piece No. 13.

Q. Please examine the patent to Miller & Burg, No. 1,302,197, that is, Defendant's Exhibit 'K', and state whether or not in that patent you will find means for holding the relatively movable members in different positions?

A. Member (k) did you say?

Q. No. Defendant's Exhibit 'K'.

A. Yes, I find member (6), Figure 3."

On Re-cross Examination

he witness referring to the quoted [75] testimony further tes-ified:

"Q. Each of these devices which you have pointed out, work or seat in a pocket?

A. Not all, no.

Q. Which ones don't?

A. Miller & Berg's doesn't.

(Testimony of R. N. Shinn.)

Q. How would you describe these elements, as notches instead of pockets, or what would you call them?

A. They could be called notches, or grooves.

Q. Then they are shallow recesses, that would be a generic term, and an all inclusive term.

A. Not a shallow recess.

Q. Not shallow?

A. They may be termed that."

M. B. PENDLETON,

recalled, testified on behalf of the defendant, that the tool marked in red ink with a pointing red line on page 28 of the catalog of the Plomb Tool Company (admitted as Defendant's Exhibit "Q") was one of the Eagle wrenches put out by the Plomb Tool Company. He testified that the adapter on page 28 of this catalog, designated as DXA3, could be used in connection with the Eagle wrench. The witness turned to page 18 of this catalog and identified the adapters on that page as being double male adapters which were the same as the adapter shown on page 28 with the addition of one part of a different type; that this additional part was the double male feature.

Defendant introduced two wrenches as Exhibits "A" and "B" filed in connection with their Interrogatories.

"Mr. GEISLER: Before Defendant rests, I desire to have Plaintiffs advise Defendant as to Plaintiffs' position on the question of infringement. Referring to Defendant's Interrogatory Exhibit 'A', this is made with a male plug to receive a socket on it. Defendant's Interrogatory Exhibit

SETS

DDX-1—Popular Set: DDX15-16-17-18-20-22-23-24, DXE8, DXE16, DXSB. Weight of set in wooden box, 17¼ lbs. Price per set $13.65

DDX-2—Same as above, in metal case..... 17.40

DDX-3—Regular Set: DDX15 to DDX28 Sockets, inc., DXE8, DXE16, DXSB, DXR12, DXA1. Weight of set in wooden box, 25 lbs. 6 oz. 27.05

DDX-4—Same as above, in metal case..... 30.80

DDX-5—Complete Set. All sockets and attachments. Weight of set in wooden box, 38 lbs. 5 oz..... 44.70

DDX-6—Same as above, in metal case..... 48.45

ADAPTORS

These adaptors enable Plomb sockets to be used with handles of other makes, or Plomb handles with other sockets.

No.		Weight	Price
DXA1	¾" Male x ¾" Male Plug	4	$ .60
DXA2	¾" Male and ½" Female Adaptor Plug	3	.75
DXA3	¾" Female and ⅜" Male Adaptor Plug for using Plomb handles with sockets of other manufacturers	8	.90
DXA4	⅝" Female and ¾" Male Adaptor Plug for using Plomb sockets with handles of other manufacturers	7	.85

Defendants Exhibit Q

UNIVERSAL SOCKET WRENCH

A general purpose tool with thin walls, short coupled universals, light weight but of exceptional strength.

No tool kit is complete without a set of these wrenches.

No.		Weight Lbs.	Oz.	Price
P11	7/16"—12 Point 18" T Handle	1	2	$3.00
P12	½"—12 Point 18" T Handle	1	3	3.25
P13	9/16"—12 Point 18" T Handle	1	3	3.50
P14	⅝"—12 Point 18" T Handle	1	8	3.75
P15	11/16"—12 Point 18" T Handle	1	8	3.75
P16	¾"—12 Point 18" T Handle	1	8	3.75

DU18 ..... $2.00

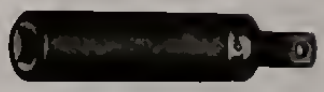
18" T Handle Universal with short coupled ½ male plug. Weight ea. 1 lb. 6 oz.

ADAPTERS

No.	Size	Weight	Price
5252	⅜ Male x ⅜ Male	1 oz.	$ .25
DA8	½ Male x ½ Male	2 oz.	.25
DA9	½ Male x 9/16 Male	3 oz.	.50
DXA1	¾ Male x ¾ Male	4 oz.	.60
DXA2	¾ Male x ½ Female	3 oz.	.75
DXA3	⅝ Male x ¾ Female	8 oz.	.90
DXA4	¾ Male x ⅝ Female	7 oz.	.85
DE3	½ Male x ½ Male 3" Long		.40

DRAG LINK SCREW DRIVERS

No.	Width Bit	Attach. Size	Weight	Price
DSD12	¾"	½ sq.	2 oz.	$ .65
DSD18	1"	½ sq.	2 oz.	$ .65



DRH—Ratchet Extension Handle. Gives a Hand Hold below Ratchet..... $ .75

Entered Filed July 11, 1932
(3) Edmunds Clerk

P 126

(Testimony of M. B. Pendleton.)

'B' is made with a female wrench receiving part. The only difference between the two exhibits is the substitution of a female wrench-engaging part for a male wrench-engaging part. I call attention to the ruling of the Patent Office which occurs on page 10 of the file-wrapper, Defendant's exhibit 'L', Paper No. 2: The Examiner stated that the element B of the Mandeville patent, Defendant's Exhibit 'C', and the element 3 of the Miottel patent, Defendant's Exhibit 'G', are considered the equivalent of member 4 of the Eagle wrench. I want to know whether the failure by plaintiffs to introduce a wrench of the type of Defendant's Interrogatory Exhibit 'B' was because no infringement is claimed on that type of wrench.

* * * * * * * *

"Mr. RAMSEY: It is Plaintiffs' contention that the handle and the female head shown in Defendant's Interrogatory Exhibit 'B' is not the equivalent and is not [76] claimed to be an infringement of the Eagle patent. However, when that has been modified by a coupler or adapter so that the wrench has a male head and can be used in combination with a common socket, then it approaches the Plaintiffs' patent; and if this Court holds that this patent is entitled to broad interpretation, Plaintiffs claim that Defendant's Interrogatory Exhibit 'B' when used with an adapter infringes the Eagle patent. If, however, the Court considers the Eagle patent to have a narrow interpretation, we wish the Eagle patent to be so limited."

Defendant introduced as Defendant's Exhibit "P" an

(Testimony of M. B. Pendleton.)
"Adapter" which can be used with Defendant's Interrogatory Exhibit "B".

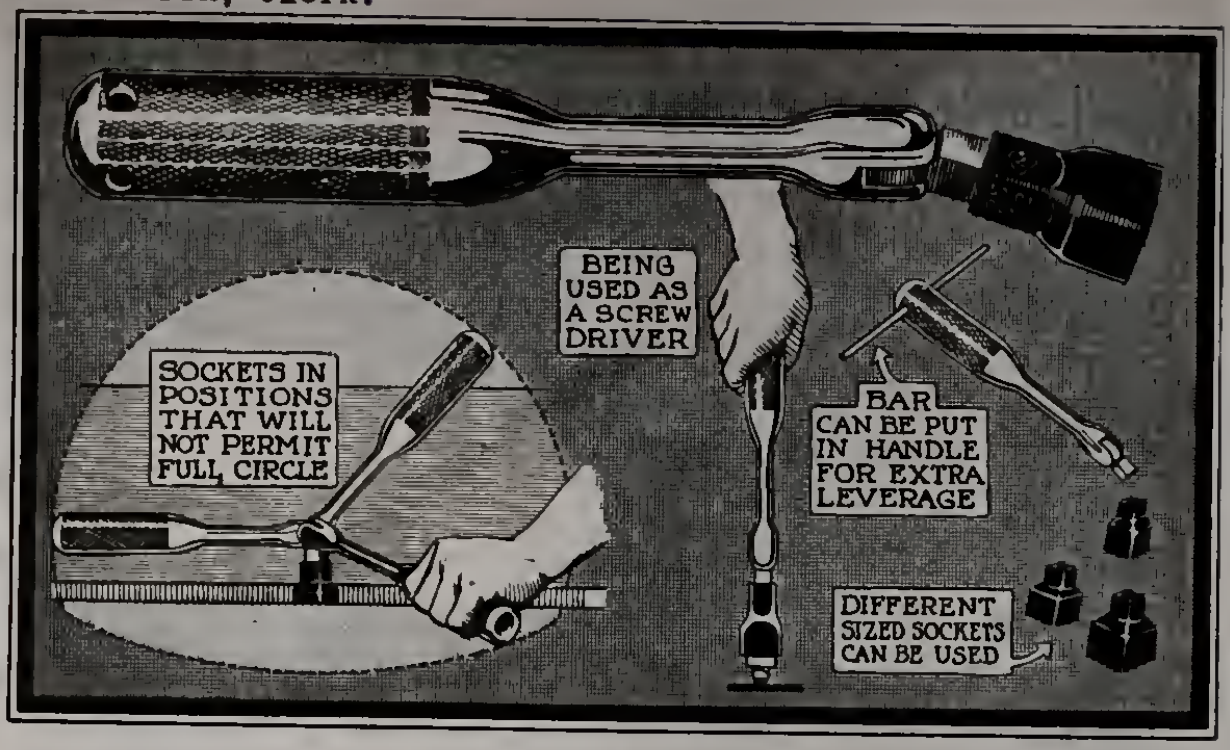
It was stipulated that only the two pages referred to in the catalogue, Defendant's Interrogatory Exhibit "Q", are to be considered.

C. F. CARLBORG,

sworn as a witness on behalf of the plaintiffs in rebuttal, testified that he was a machinist and learned his trade in the first part of 1900 at St. Paul, Minnesota; that he had worked as a machinist at St. Paul about five years, came to Idaho in 1905 and worked at the machinist trade off and on until 1915 at Nez Perce, Idaho; that he was engaged in general repair work and automotive work at Nez Perce, and in 1915 became associated with Mr. Peterson, president of the defendant company; that he and Mr. Peterson were engaged in the repair business, both general machine and automotive repairs, at Payette Lake, Idaho, from 1915 until 1920 and in the latter year they went to Lebanon, Oregon; that they followed the same business until 1922. In 1922 he and Peterson started manufacturing tools at Lebanon, Oregon, and remained there until February 1, 1923 when they moved to Milwaukie, Oregon where they continued manufacturing tools for automobiles under the name of Peterson and [77] Carlborg, a corporation; that subsequently they formed the P & C Tool Company, a corporation; that it was his duty to look after the machinery used in the factory and with Mr. Petersen to design tools. He stated that when he was connected with the company he held the office of vice-president and handled the shop end of the business. The witness testified that he was familiar with the Eagle patent

PLAINTIFF'S EXHIBIT 7.

Filed July 11,1932.
G.H.Marsh, Clerk.



THE EAGLE SOCKET WRENCH

Showing various positions in which it may be used.

The Eagle Socket Wrench

THIS WRENCH has all the advantages of a ratchet combined with a simplicity all its own. It can be used in the most awkward places; it fits and reaches any and all nuts and bolt heads. When working at a bolt or nut which permits only half a turn, the hinged handle of the wrench can be brought through the half turn, then swung over to the original position and the full circle completed. When it is impossible to get a half turn, the handle stands straight away from the end of the socket and is turned by means of a punch through the holes provided, doing away with the annoyance always encountered in a job of this sort.

THE EAGLE WRENCH, carried in your tool kit will save its purchase price time and again in labor and temper. You will find it so handy that you will be looking for opportunities to use it; you'll get rid of all the rattles and squeaks in spite of yourself.

THE EAGLE WRENCH is machined from a solid bar of cold rolled steel. Has no joints or welds anywhere. Consequently almost unbreakable. One moving part only and fits all makes of sockets.

List, $4.50.

98

Plaintiff's exhibit 7

(Testimony of C. F. Carlborg.)

and the Eagle wrench and this type of wrench is generally called a flex-handle or hinge handle wrench. He stated that the P & C Tool Company started manufacturing the flex-handle wrench about 1925; that prior to that time, in 1922, a friend from Salt Lake City had handed him a picture of a handle and some sockets, but he had lost this picture. He was shown plaintiff's Exhibit "7" and testified that the type of wrench illustrated by that exhibit was the type pictured in the pamphlet which he had been given in 1922 except that the type illustrated in the pamphlet showed the handle in different positions, both ways, and that it had a number of sockets illustrated on the lower end. The witness said:

"Q. When were your efforts first directed to the designing of a wrench such as the Eagle wrench, which you say you started to manufacture in what year?

A. Well, we made up a sample in Lebanon, but it was altogether different from the other by not having any forked ends; these two—the socket holding device, and handle, we used them flat together with a pin or bolt.

Q. Holding them together?

A. To hold them together, yes, making a hinge.

Q. In other words, neither part a fork?

A. No.

Q. They both just lay alongside of each other?

A. Yes.

Q. That was in Lebanon?

A. That was in Lebanon.

Q. What were your next efforts to develop a wrench of the Eagle type?

A. I think about 1925.

(Testimony of C. F. Carlborg.)

Q. And what sort of a device did you design at that time?

A. We made a straight handle, and a forked bifurcated socket holder device, and a pin through to make a hinge."

The witness was handed Plaintiff's Exhibit "8", a copy of a patent issued to Mr. Petersen, president of the defendant company, and was asked if it represented the type of wrench which was next manufactured by the defendant company. The witness testified: [78]

"A. That is the type of wrench.

Q. And how does that differ from the present wrench which the defendant manufactures?

A. By having the—by having a straight handle and a forked socket holding device. We had either a square or a hexagon to hold the socket; Figure 1 being the handle, Figure 2 showing the socket holding device; that is Figure 5; with two—one forked end; that is attached with a pin to the flattened end of the handle, and a socket fitting on this square end. The flat handle also contained a small ball, with spring, or rather two, as it shows here, to form a friction against the sides of the socket holding member, so as to hold it in any position that you want it when you want to use the wrench.

Q. How long was that type of wrench manufactured by the defendant corporation?

A. It was manufactured as long as I stayed with the corporation.

Q. At what time—when did you leave the corporation?

A. 1929."

PLAINTIFF'S EXHIBIT 8.

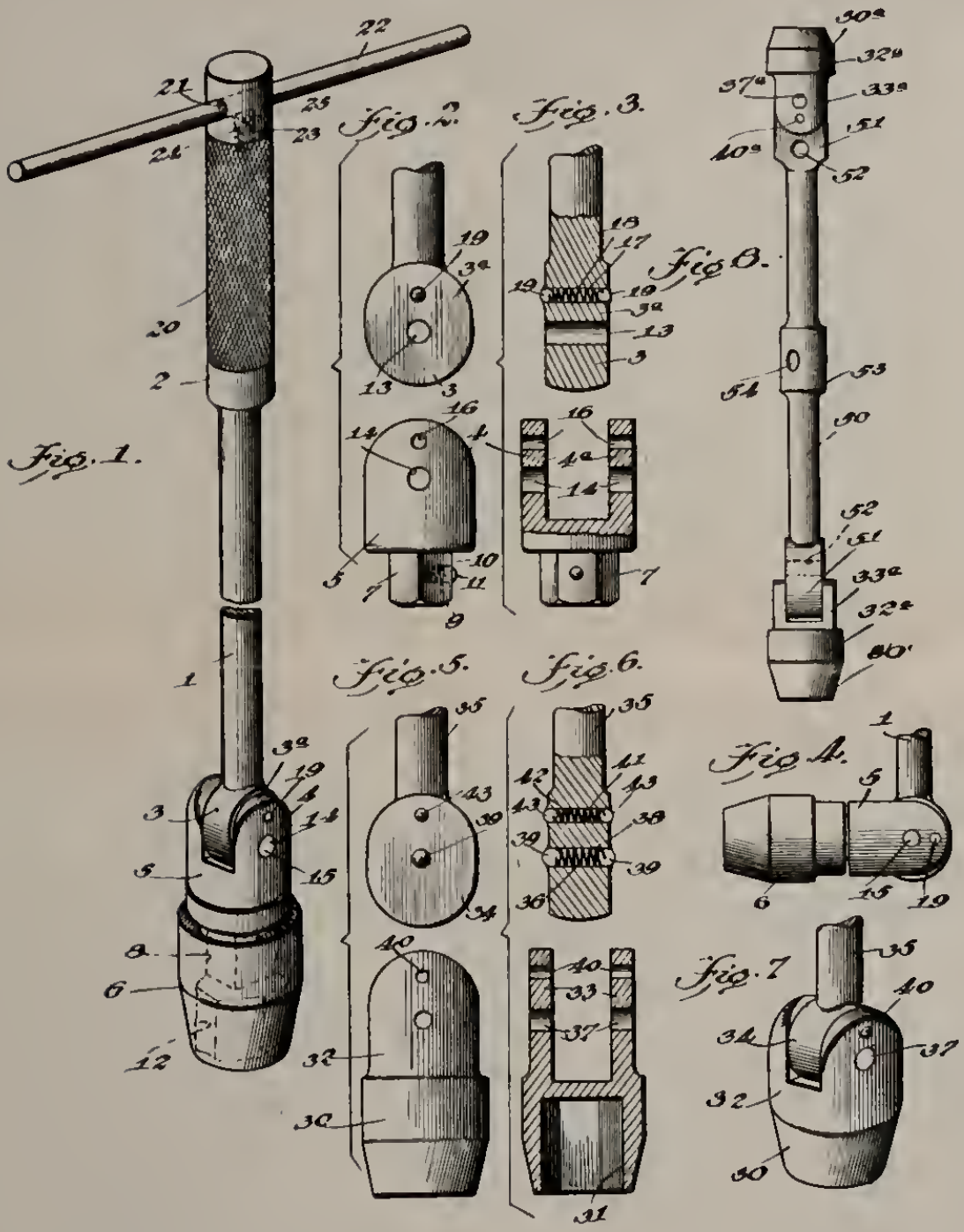
Filed July 11, 1932.
G. H. Marsh, Clerk.

Sept. 27, 1927. 1,643,814

J. N. PETERSON

SOCKET WRENCH

Filed May 11, 1926



WITNESSES

INVENTOR

J. N. Peterson,

BY

ATTORNEYS

Patented Sept. 27, 1927. 1,643,814

UNITED STATES PATENT OFFICE.

JOHN N. PETERSON, OF MILWAUKIE, OREGON.

SOCKET WRENCH.

Application filed May 11, 1926. Serial No. 108,312.

My invention relates to improvements in socket wrenches, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is the provision of a socket wrench having a wrench head hinged to a handle so that the handle may be disposed in axial alignment with the wrench head or at various angles with the axis of the wrench head and will be held securely, although releasably, against accidental swinging movement independently of the wrench head.

A further object of the invention is the provision of a wrench of the character described having novel and efficient spring actuated means for releasably connecting a handle with the wrench head of the device and for securing the handle against swinging accidentally from any one of a plurality of different angularly related positions to the wrench head.

A still further object of the invention is the provision in a wrench of the character described of a wrench head which comprises two coengageable separable sections, whereby socket members adapted for engaging with nuts or like members of different sizes and configurations may be used selectively with the remaining elements of the device.

A still further object of the invention is the provision of a wrench of the character described having socketed wrench heads at opposite ends of a handle.

Other objects and advantages of the invention will be apparent from the following description, considered in conjunction with the accompanying drawings, in which

Figure 1 is a perspective view of a wrench embodying the invention,

Figure 2 is a side elevation of cooperative coengaging elements of the handle and the wrench head of the device separated from each other,

Figure 3 is a view similar to Figure 2 at right angles thereto with portions of the cooperative elements of the wrench head and handle broken away and other portions being shown in section,

Figure 4 is a side elevation of the lower end portion of the wrench shown in Figure 1, showing the wrench head turned at right angles with the handle,

Figure 5 is a view similar to Figure 2, showing a modified cooperative part of a wrench head and a handle embodying the invention,

Figure 6 is a view of the parts shown in Figure 5, the view being at right angles to Figure 5 and mainly in vertical section, portions of the handle being shown in elevation,

Figure 7 is a perspective view of the parts shown in Figures 5 and 6 as they appear when connected together and disposed with the handle in axial alignment with the wrench head, and

Figure 8 is a side elevation of a wrench embodying the invention and having wrench heads at opposite ends thereof.

A wrench embodying the invention includes a substantially straight rod-like handle 1 which may be enlarged from one end for part of its length as indicated at 2. The opposite end portion of the handle 1 may be enlarged as indicated at 3 to provide an attaching portion. This attaching portion may have substantially flat parallel side faces 3^a which lie in planes parallel to the longitudinal axis of the handle 1. This attaching portion 3 also may be formed to be substantially circular in configuration in a plane parallel to the axis of the handle 1. The attaching portion 3 of the handle is adapted to fit between the parallel inner faces 4^a of ears 4 at one end of a section 5 of a wrench head which also includes a socket member 6. The section 5 of the wrench head has a portion 7 which is non-circular in cross sectional contour and which fits in a socket 8 in the upper end of the socket member 6. The portion 7 of the section 5 of the wrench head is provided with a lateral pocket 9 in which an expansion spring 10 is compressed between a latching ball member 11 and the inner end wall of the pocket 9. The ball member 11 protrudes from the pocket but is held against moving completely out of the pocket as a result of the actuation of the spring 10 in any suitable known manner, as by having the wall of the pocket 9 swaged inwardly at the outer end of the pocket so as to have a diameter slightly less than that of the ball member 11. However, the spring will function to hold the ball member in frictional engagement with the side wall of the socket 8 and thus will tend to hold the socket member 6 in place on the portion 7 of the section 5 of the head of the wrench. The

socket member 6 also has a socket, indicated at 12, in its lower end adapted to receive and engage with a nut, not shown, or like object. The socket 12 may be of any suitable non-circular configuration in cross section. The attaching portion 7 of the section 5 of the head also may be of any suitable configuration in cross section and the socket 8 of course will conform in cross section to the configuration of the portion 7 of the section 5 of the wrench head. It will be understood that a plurality of the socket members 6 may be provided, the respective socket members having sockets 12 of different sizes or different configurations in cross section and these socket members may be used interchangeably and selectively with the section 5 of the wrench head.

The attaching portion 3 of the handle of the wrench is provided with a transverse opening 13 which may be formed through the attaching portion 3 of the handle slightly below the transverse median line of the attaching portion 3 and across the vertical median line of the attaching portion 3. When the attaching portion 3 of the handle is in place between the ears 4, the opening 13 will be in register with transverse openings 14 in the ears 4. A pivot pin 15 extends through the aligned openings 14 -13—14 so that the handle 1 is hingedly connected with the wrench head.

The handle 1 thus may be swung from axial alignment with the head of the wrench to positions at various angles to the head. It is desirable that the handle 1 shall be maintained in axial alignment with the wrench head more positively than in any other position and to this end, the ears 4 may be provided adjacent to their upper ends with aligned transverse openings 16. The attaching portion 3 of the handle is provided with a transverse opening 17 in position to register with the openings 16 when the handle 1 is in axial alignment with the wrench head. An expansion spring 18 is disposed in the transverse opening 17 and reacts at its opposite ends against ball-shaped latch members 19 which are prevented from moving completely out of the opening 17 in any suitable known manner, as by swaging the walls of the opening 17 inwardly at the ends thereof to have diameters less than the diameters of the ball members 19. The ball members 19 are permitted to protrude from the opposite ends of the opening 17 into the adjacent ends of the openings 16 when the handle 1 is in axial alignment with the wrench head and a considerable force therefore must be exerted on the handle to swing it from the position shown in Figure 1 to a position at an angle with the longitudinal axis of the wrench head, as for example to position to extend at right angles with the longitudinal axis of the wrench head, as shown in Figure 4. When the handle 1 is disposed at an angle with the longitudinal axis of the wrench head, the latch members 19 will be pressed by the spring 18 against the walls of the ears 4 and the friction will be sufficient to maintain the handle 1 in a given angular relation with the longitudinal axis of the wrench head until the angular relation of the handle 1 with the longitudinal axis of the wrench head is changed as a result of the application of a considerable force. The enlarged end portion 2 of the handle 1 may be knurled or otherwise roughened for part of its length, as indicated at 20 so that it can be conveniently gripped in the hand of the user. In addition, the upper end portion of the enlarged portion 2 of the handle is provided with a diametrical opening 21 for the reception of a removable cross bar 22 which can be grasped and manipulated to turn the handle 1 about its axis. A vertical pocket 23 is provided in the enlarged end portion 2 of the handle in position to intersect the transverse opening 21. An expansion spring 24 is disposed in the pocket 23 and presses a ball member 25 against the cross bar 22, thus preventing accidental axial movement of the cross bar 22.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The wrench head and the handle 1 may be disposed at various angles to each other and will be releasably held in any given angular relation by the spring pressed latch means hereinbefore described. The device therefore can be manipulated to turn nuts or similar objects which are located at places inaccessible to a rigid socket wrench. Also, the handle 1 may be swung to a desirable angular relation with the longitudinal axis of the wrench head after the wrench head has been engaged with a nut or like member so that a relatively great leverage may be exerted on the nut or like member to effect turning of the same. The handle 1 will be more securely held in place and against swinging about the axis of the pivot element 15 when the handle 1 is in alignment with the wrench than in any other angular relation to the longitudinal axis of the wrench head. The handle 1 and the section 5 of the wrench head can be used with socket members 6 having sockets 12 of different sizes and configurations formed therein and the device thus is adapted to have a relatively wide range of utility.

The wrench head of the modification which is partially exhibited in Figures 5 to 7 inclusive is formed in a single piece and comprises a socket member 30 having a socket 31 in its lower end of suitable size and configuration in cross section to receive and engage with a nut or other object that is to be

turned. The socket member 30 is integral with a connecting member 32 which has a pair of upstanding spaced ears 33 adapted to straddle an attaching end portion 34 of a stem 35. The attaching end portion 34 is similar to the attaching portion 3 of the handle 1 and is provided with a relatively large transverse opening 36 in the same position in the attaching portion 34 of the handle as the transverse opening 13 in the attaching portion 3 of the handle 1. The transverse opening 36 is adapted to register with aligned transverse openings 37 in the ears 33. The openings 37 are of less diameter than the opening 36. An expansion spring 38 is disposed in the opening 36 between a pair of ball members 39 which are urged to positions to protrude from the ends of the opening 36 into the openings 37, whereby the handle 35 will be pivotally and detachably connected with the member 32 of the wrench head. The ears 33 also are provided with smaller aligned transverse openings 40 and the attaching portion 34 of the handle 35 is provided with a transverse opening 41 which will be disposed in alignment with the openings 40 when the handle 35 is in axial alignment with the wrench head 32—30. An expansion spring 42 is disposed in the transverse opening 41 between a pair of ball-shaped latch members 43 and urges the ball-shaped latch members 43 to positions to protrude from the ends of the opening 41 into the openings 40, whereby the handle 35 will be releasably held in axial alignment with the associated wrench head but can be swung as a result of the exercise of a considerable force to various angles with the longitudinal axis of the wrench head. The ball-shaped latch members 43 will engage with the inner faces of the ears 33 when the handle 35 is in any position to which it may be swung about the aligned axes of the ball-shaped pivot and latch members 39 and thus will tend to maintain the handle 35 in any given angular relation to the longitudinal axis of the associated wrench head. A plurality of the wrench heads 30—32 may be provided, the respective wrench heads being identical with one another in essential respects but having sockets 31 of different sizes or different configurations in cross section and these respective wrench heads may be used interchangeably and selectively with the handle 35.

The modified form of wrench shown in Figure 8 includes a handle 50 having enlarged attaching portions 51 at each of its opposite ends. The attaching portions 51 at the opposite ends of the handle 50 are at right angles with each other. Each of these attaching portions 51 may be identical in essential respects with the attaching portion 34 on the handle 35, the only difference being that the attaching portions 51 are relatively longer than the attaching portion 34. A wrench head is provided for each of the attaching portions 51 and may be identical in essential respects with the wrench head 30—32 and therefore has been indicated by the same reference characters as the wrench head shown in Figures 5, 6 and 7, with the letter *a* added to each of such numerals. Each attaching portion 51 of the wrench handle 50 may be connected pivotally with the ears 33ª of the associated wrench head in the same manner as the attaching portion 34 of the handle 35 has been described as being attached to the ears 33 of the wrench head shown in Figures 5 to 7 inclusive. Latching means, identical in essential respects with that which has been described as being used with the forms of the device shown in Figures 1 and 5 to 7 inclusive also will be provided for releasably holding each wrench head of the modification shown in Figure 8 against swinging accidentally about the axis of its pivotal connection with the handle 50. The inner end portion of each part 51 of the handle 50 may be provided with a transverse opening 52 through which the cross bar 22 or a similar bar may be projected for use in turning the wrench. In addition, the middle portion of the handle 50 may be enlarged as indicated at 53 and provided with a transverse opening 54 which also is adapted to have the cross bar 22 projected therethrough.

Obviously, the invention is susceptible of embodiment in forms other than those which are illustrated in the accompanying drawings, and I therefore consider as my own all such modifications and adaptations thereof as fairly fall within the scope of the appended claims.

I claim:—

1. A socket wrench comprising a handle, a socket wrench head, pivotal means connecting said handle with said head, the axis of said pivotal means extending at right angles with the longitudinal axis of said handle, the handle having a transverse opening and said head having transverse openings adapted to register with the openings in said handle when the handle is axially alined with said wrench head, an expansible spring disposed in said transverse opening in the handle, and a pair of ball-shaped latch members disposed in the opposite end portion of the transverse opening in said handle against the opposite ends of said spring and adapted to be moved by said spring to positions to protrude from the opposite ends of said transverse opening in the handle into the adjacent ends of the transverse openings in the head when said handle is axially alined with said wrench head and to frictionally engage with the faces of said head when said handle is in angular relation to said wrench head.

2. A socket wrench comprising a handle having an enlarged attaching portion at one end, said attaching portion having a pair of opposite parallel faces, a socketed wrench head having a pair of ears straddling said attaching portion, the inner faces of said ears being disposed flatwise against said parallel faces of said attaching portion, pivot means connecting said attaching portion of the handle with the ears, the axis of said pivot means extending at right angles with the longitudinal axis of said handle, said attaching portion of the handle having a transverse opening and said ears having transverse openings adapted to register with the transverse opening in said attaching portion of the handle when said handle is axially aligned with said wrench head, said transverse openings in said ears being of less diameter than said transverse opening in said attaching portion of the handle, an expansion spring disposed in said transverse opening in the attaching portion of the handle, and a pair of ball-shaped latch members disposed in the opposite end portions of the transverse opening in said attaching portion of the handle against the opposite ends of said spring and adapted to be moved by said spring to positions to protrude from the opposite ends of said transverse opening in the attaching portion of the handle into the adjacent ends of the transverse openings in the ears when said handle is axially aligned with said wrench head and to frictionally engage with the inner faces of said ears when said handle is in angular relation to said wrench head.

3. In a socket wrench, a handle having an enlarged attaching portion at one end, said attaching portion having a relatively large transverse opening formed therethrough and also having a smaller transverse opening located inwardly of said first named transverse opening, both of said transverse openings intersecting the longitudinal axis of said handle, a wrench head having a pair of ears straddling said attaching portion of the handle, said ears having a pair of aligned transverse openings adapted to register with said first named opening in the attaching portion of the handle, said ears also having a pair of aligned transverse openings adapted to register with the second transverse opening in the attaching portion of the handle when said handle is axially aligned with said wrench head, coiled expansion springs disposed in said transverse openings in said attaching portion of the handle, ball members disposed at the opposite ends of each of said expansion springs, the expansion spring in said first named transverse opening in the attaching portion of the handle acting to urge the ball members at the ends of said expansion spring to positions to protrude from the ends of said first named transverse openings in the attaching portion of the handle into the associated transverse openings in said ears, whereby said handle will be pivotally and detachably connected with said ears, the expansion spring in the second transverse opening in the attaching portion of the handle acting to urge the ball members at the opposite ends of said second named expansion spring against the inner faces of said ears when said handle is disposed at an angle with the longitudinal axis of said wrench head and into the adjacent ends of the associated transverse openings in said ears when said handle is axially aligned with said wrench head.

4. In a socket wrench, a substantially straight rod-like handle having an attaching end portion enlarged and formed to be substantially circular in configuration in the plane of the longitudinal axis of the handle, said attaching end portion having flat opposite faces, a wrench head having a pair of ears straddling said attaching end portion of the handle, the inner faces of said ears being in contact with said flat opposite faces of said attaching end portion of the handle, pivot means connecting said ears with said attaching end portion of the handle, and a spring pressed ball-shaped latch member carried by said attaching portion of the handle in frictional engagement with the inner face of one of said ears.

JOHN N. PETERSON.

(Testimony of C. F. Carlborg.)

The witness testified that in 1926 a wrench of the design of Defendant's Interrogatory Exhibit "A" was designed and manufactured. This wrench had a bifurcated handle with a socket support having a circular end and a square end to fit a socket. He stated that the wrench described in the Peterson patent, Plaintiff's Exhibit "8", cost more to manufacture as it took slightly more material than the wrench exemplified by Defendant's Interrogatory Exhibit "A" and that the wrench made on the Eagle pattern (Defendant's Interrogatory Exhibit "A") would operate in a smaller space. He said:

"A. It goes into a smaller space this way, where the automobile motor, or any place in the automobile, will be a projection over the nut or bolt you have to take out, and you get in with this in a smaller space.

Q. Smaller space than what?

A. Than the Peterson flex handle.

Q. And when speaking of the Peterson flex handle, you mean the wrench made in accordance with the Peterson patent, which is Plaintiff's Exhibit '8'?

A. Yes.

Q. In demonstrating, and for the purpose of the record, when you were saying that this will go into a shorter space, you are pointing to the socket support and socket in place?

A. Yes.

Q. Measured from the pivot axis to the mouth of the socket which is adapted to engage the nut?

A. Yes.

Q. You were in court when Mr. Shinn, who is one of the defendant's witnesses, explained the difference in cost of

(Testimony of C. F. Carlborg.)

manufacture between the wrench made in accordance with the Eagle patent, and the one made in accordance with the Edmands patent. I will ask you to refer to Defendant's Exhibit 'AA', which shows the Edmands wrench, and Plaintiff's Exhibit 2, which shows the Eagle patent, and compare those wrenches shown in the patents, on a cost basis. Which wrench would cost the most to manufacture? [79]

A. The Edmands patent, the Edmands wrench.

Q. How much more would it cost, in your opinion?

A. The cost would be at least double.

Q. When you were in the manufacture of tools with the P & C Tool Works, and before that, your experience embodied the manufacture of tools, and the method of making tools?

A. Yes.

Q. Will you explain to the Court the operations required in making Edmands head and the integral ears, and the operations required in making the Eagle socket support and the form of standard sockets which it is adapted to engage, from a cost basis, bearing on operation.

A. The handles of the two wrenches in question are identical in manufacture.

* * * * * * * *

A. I say that the two handles, the handles of the two wrenches in question, the Edmands patent and the Eagle patent, are identical in manufacture, the two handles; but the head for the Edmands wrench—the heads for the Edmands wrench are a series of sockets with a holding device solid with the socket, and it requires at least five more operations to make those sockets, than to make the regular socket.

(Testimony of C. F. Carlborg.)

Q. Now refer to the socket support in the Eagle.

A. The socket support of the Eagle wrench is very inexpensive requiring just a short piece of square steel, that is made semi-circular on one end, and a hole driven for the ball to have—The Edmands wrench has a socket with a device that enters the opening in the handle, which got to be on each socket. As I say, each socket has at least five more operations to it than a regular socket has, that can be drilled out of a piece of steel, and forged with a small amount of labor."

The witness testified that he was familiar with the use of wrenches of the character of Edmands and Eagle wrenches; that his first experience with wrenches was as an automobile mechanic; that at said time automobile mechanics had sockets which consisted of a handle with right and left hand ratchets and a number of sockets made out of pressed steel; that garage mechanics at that time had T handle wrenches made by blacksmiths; that the average mechanic from about 1915 to 1920 and later possessed as high as 150 pounds of wrenches, aggregating about 100 wrenches; that it was necessary to have this number of wrenches in order to do the work in different places on motors and the chassis of automobiles. Mr. Carlborg testified that one wrench would not suffice because there were nuts and bolts of different sizes and that certain operations required wrenches of special design. Respecting this latter matter, he said: [80]

"A. There were places on the motors and chassis of the car that required a wrench of a special design, because there were places that were hard to get at."

The witness testified that since the introduction of flex-handle wrenches the average automobile mechanic is not required

(Testimony of C. F. Carlborg.)

to possess as many wrenches as formerly because the flex handle wrench, with a set of sockets, is capable of being used on most of the work done on a motor; that about three flex handles of different sizes and about 26 sockets were sufficient for the average mechanic at the present time. He stated that prior to the introduction of the flex handled wrench the average mechanic was required to purchase from $200 to $250 worth of wrenches. He further testified:

> "Q. Do you know whether mechanics generally, and you personally, put any thought on the devising of a wrench which would eliminate this vast number of wrenches, during this period of time which you spoke of?
>
> A. Yes, we spent lots of time on designing wrenches.
>
> Q. Did you personally spend any time on attempting to solve this problem, or not?
>
> A. I have some, yes."

The witness said that the defendant company manufactured as many flex handle wrenches as all other types of handles combined and that the experience of the defendant company was the same as the experience of the Plomb Tool Company, as testified to by Mr. Pendleton. He testified that he was subpoenaed as a witness in the case and did not bear any ill-will towards the defendant company. He said that in his experience as a mechanic from 1900 to the date of the trial he had never seen a wrench of the type shown in the Edmands patent nor of the type shown in the Fairchild patent. (Defendant's Exhibit "J")

On Cross Examination

Mr. Carlborg testified that he severed his connection with the defendant corporation in the fall of 1929 because of a disagreement. He further testified:

(Testimony of C. F. Carlborg.)

"Q. I call your attention to Plaintiff's Exhibit 8. Please look at the member (5) of Figure 1. [81]

A. Member (5), yes.

Q. That is the piece which is movable relatively to the handle—it is pivoted in place; that is correct, isn't it?

A. Yes.

Q. Now that piece could be made as shown in Figure 5, or as shown in Figure 2?

A. Yes.

Q. Figure 2 showing a male connecting part, and Figure 5 showing a socket part?

A. A socket solid with the forked end.

Q. That was interchangeable just as the mechanic saw fit to use it.

A. Not very well, because it had to be riveted with a rivet, to the handle, with room enough so it could move.

Q. Well it would be a simple thing to take out a rivet, would it not?

A. Well you could, yes.

Q. And then put one piece on there just as the mechanic wanted?

A. He could, but would not be very convenient.

Q. Any mechanic could do it, couldn't he.

A. No.

Q. No mechanic? You say a mechanic couldn't do it?

A. Not very well.

Q. An expert mechanic couldn't remove a rivet?

A. Yes he could, or he could.

Q. Now you can read patent drawings, can't you?

A. Yes.

Q. I am going to—can you read a claim of a patent? Have you had an experience with patents?

(Testimony of C. F. Carlborg.)

A. Some, yes.

Q. You can read a claim of a patent?

A. Yes.

Q. Now you look at the claim of the Eagle patent. The Eagle patent is Plaintiff's Exhibit 2. Now the first piece described there, what we will term an element, is a handle having a bifurcated shank. You see that, don't you?

A. Yes.

Q. Now there is nothing new in making a handle with a bifurcated shank, is there?

A. Why no, I don't suppose.

Q. From a mechanic's standpoint.

A. No, of course it would not be; but the idea of the use that you would want to put it to, would make it new.

Q. Now I am going to ask you to look at the Miottel patent, which is Defendant's Exhibit 'G'. [82]

Mr. RAMSEY: At this time the plaintiff objects to the attempt to qualify this witness as an expert on patent matters, on cross examination, unless the defendant wishes to make him his own witness. These questions were not gone into on direct.

COURT: Sustained."

* * * * * * * *

"Q. You say that there is an advantage in the construction of the Eagle patent, in that you can get that piece (4) with a socket on it, in a smaller space?

A. Yes.

Q. What other advantage do you find in the Eagle patent?

A. It is a little cheaper to manufacture, because it is easier to make it; it is easier to make the handle; that forked

(Testimony of C. F. Carlborg.)

handle, out of just a square piece of steel, than to take a round piece of steel and mill that other, or forge it and then mill it square to hold the socket; that requires some work and slightly more material.

Q. From your experience with the wrench invented by Mr. Peterson, that is, Plaintiff's Exhibit 8, Peterson's wrench, No. 1,643,814, is it not a fact that in the use of that tool it frequently occurred that the fork on the part (5) broke in use?

A. That particular part (5)? [83]

Q. Yes, part (5) looking at Figure 1.

A. Do I understand you?

Q. That it broke?

A. Broke?

Q. Yes, broke away in use.

A. It sometimes does.

Q. Now when you broke a fork on the handle itself, there would be a breakage of that tool, would there not?

A. Of course there is not anything made but what it can be broken, but if it is heat treated in the right manner, it is very hard to break either one of them.

Q. If the fork broke, which is part of the handle, if that broke you would have to make a whole new handle, wouldn't you?

A. Yes.

Q. Whereas, if the fork broke on the part (5) you would only have to make that part (5)?

A. Yes."

On Re-direct examination

the witness testified that wrenches with forked handles did not break any more frequently than handles of other designs; that

(Testimony of C. F. Carlborg.)

breakage would not occur if the heat treatment was right; that breakage was a rare occurrence. The witness stated that he heard the testimony of the defendant witness, Mr. Kelly, and testified with respect to the opinion of the witness Kelly that a wrench of the Eagle type in active use might be worn out in a week's time, that:

"A. My experience is this, that they will last for years. I have been using both kinds, and have used them for the last three years, not every day, but a good deal of the time, and they are still as good as ever.

Q. What was the experience with the defendant corporation with regard to replacement of wrenches for undue wear? What was their experience, and what was their policy in regard to replacement?

A. If it breaks through faulty material or workmanship, it was replaced.

Q. Was that replacement on account of wear a rare occurrence, or a frequent occurrence?

A. No, just on breakage.

Q. You say on breakage it was rare?

A. On breakage.

Q. What about wear, undue wear?

A. They were not supposed to replace on undue wear, because there were none of them that would wear out in a year's time."

J. J. BUHLER

was called as a witness in rebuttal by the plaintiff and testified that he was a sales representative of the Plomb Tool Company in Oregon, Washington and Northern Idaho; that he had been a salesman since 1929, handling sales in California from February 1, 1929 until January 1, 1932 when he commenced acting as [84] salesman in Oregon, Washington and Northern Idaho; that prior to becoming a salesman he had been an automobile and truck mechanic for the General Petroleum Corporation from 1922 until February, 1929; that his duties consisted of repairing and overhauling tractors, trucks and making general repairs; that as a salesman he sold the Plomb tools consisting of handles, wrenches, standard sockets, ratchets, punches, chisels, etc. and that he sold them to jobbers and mechanics; that he did not stress any particular kind of tools but that "the tool game is mostly sockets and handles". The witness testified that he did not carry any of the old style wrenches such as T-wrenches, speed wrenches, etc. but that occasionally he sold a T handled wrench when it was ordered "out of the catalog". Defendant's counsel admitted that the plaintiff had a large commercial sale for the Eagle wrench. The witness testified as compared with the ratchet wrench T-handles and L-handles adapted to the ordinary socket set, the sale of the flex handled wrenches was equal to the sale of the other handles combined. He testified that when he worked for the General Petroleum Company as a mechanic, from 1922 to 1929, there was in use solid wrenches of various kinds, standard sockets for which handles were specially made in order to make them usable in difficult places, punches, chisels and similar tools. Buhler testified that during the period he was employed by the General Petroleum Corporation a good mechanic who took pride

(Testimony of J. J. Buhler.)
in his work would have possibly 200 wrenches whereas an indifferent mechanic would have 25 and borrow other needed tools from other employees. He testified that the first flex handle wrench he saw was in 1928 and that following the introduction of this wrench practically every employee in the shop at the General Petroleum Corporation bought from one to three of these wrenches. He testified further:

> "Q. Did they, or didn't they, discard their old wrenches?
> A. Yes, pretty much so."

He said that there were approximately 30 mechanics regularly employed and that they all adopted the flex handled wrench. The witness testified that a mechanic with flex handled wrenches would discard half of the [85] wrenches formerly used; that is, that two or three flex handles served as a substitute in the kit of the average mechanic for from ten to one hundred special wrenches. He said that when he was working as a mechanic most mechanics had standard socket sets, but that they did not use them very much until the flex-handle was introduced. Asked to explain, he testified:

> "Well if he wanted to save any time, and happened to get into a tough place his socket wouldn't go in, his handle wouldn't work, and then he would either take handles he had already made and invented for that particular job, and use it, and the first thing you know he had a flock of handles, and he gradually got out of the habit of using very many sockets, or would ruin them making them perform from one tough job to another."

He said that when the flex handle wrench was adopted standard sockets became more generally used. Asked to explain the

(Testimony of J. J. Buhler.)

reason for the more general use of the standard sockets, after the introduction of the flex handle wrench, he testified:

"A. You take your average mechanic with about ten or twelve sockets, and go out on the road on a job, with these one or two flex handles could do practically all the work he done before, when he took seven or eight handles.

Q. Why does the flex handle lend itself to the specific use on the standard sockets? Just explain that; if you care to give examples of how that—what sort of work you do with them, and why. We are not mechanics, and we don't understand.

A. I could show you if I had a handle. Most of your mechanic's work is one hand; he is holding some part with his other hand, and he will be bracing himself to reach into a tough spot, and he is working with one wrench, for instance, on a machine; a great part of your mechanical work is working inside the motor, or tearing it down; if you are putting up a connecting rod, or bearing, with two halves, he would be using one hand, holding half the bearing, and keeping his sheaves lined up, and also keeping that half from falling down. He could use the wrench with one hand, and if the bolt or nut happened to be turned here, he could tip the wrench up,—if this was a nut or bolt he could tip the wrench that way and bring it around and it comes back and he can do it here, and at the same time he has never let go with one hand. That is why I think most mechanics like it flexible, it permits him to use one hand on the wrench."

The witness testified that as a rule mechanics were required to buy their own tools and when seeking employment inquiry was always made as to whether or not the applicant was sufficiently

(Testimony of J. J. Buhler.)

supplied; that the average mechanic prior to the introduction of the flex handle [86] wrench had an investment of from $250 to $300 in tools. He testified that in some shops, in Ford shops particularly, mechanics are instructed to discard obsolete handles and to confine their tools to sockets and flex handles. Asked as to the average investment of a mechanic since the introduction of flex handles, to possess a kit of tools equivalent to the old type wrenches, he said:

> "Q. Approximately what would their average investment be now, with these flex handles, to get an equivalent kit of tools?
>
> A. The investment would be considerably less in tools; in money, in cash dollars and cents, there wouldn't be so much difference. In the old days you had a cheap grade of tools that were sold from Sears & Roebuck, or something like that, and it wasn't practical for your average mechanic to use, and he had to make, he bought a number of them, and he made the rest of them, so his investment, so far as cash money, wasn't very much, but the time spent in making them, whether he was working for a company, or working for himself, was considerable, as far as time was concerned, if his time was worth anything."

The witness was asked for his opinion concerning the Edmands wrench (Defendant's Exhibit "AA") and the wrench of the defendant on the pattern of the design of the Eagle wrench, marked Defendant's Exhibit "BB". He testified as follows:

> "Q. The Edmands wrench is Defendant's Exhibit 'AA'. Now will you from a mechanic's viewpoint, and from a user's viewpoint, compare Defendant's Exhibit 'AA' and Defend-

(Testimony of J. J. Buhler.)

ant's Exhibit 'BB', and point out the superiority of one over the other, if you find such superiority, in use or in construction.

A. Exhibit 'AA', when that hinge is down, is more or less, seems sloppy, that is, a lot of lost motion; I don't believe if you are holding something in one hand, and try to hinge it down to advantage, you could do that; you might have to take two hands; it seems to kind of catch in the slides out a little ways. In other words it don't come back all the way here, like this; you can't hardly move it, it locks that way.

Q. Why is that? Possibly it would be easier if you also had a copy of Defendant's Exhibit 'D', which is a copy of the patent specifications, so when you refer to the parts in that wrench you can refer to them by the numbers on the drawings. Can you read drawings?

A. I don't understand drawings.

Q. Well, you could see the numbers probably on the drawings, and point them out.

A. I will try. The reason it won't hinge over easily is that there is a recess back in here that is deeper than the pin, so when it is in that position it will hinge; but there is so much slack there when it comes over here the recess is not so big, and it just don't hinge; you would have to take two hands and shove it back that way, [87] to move the wrench.

Q. In other words, look at Figure 6 in that Edmands drawing; that recess you speak of is (i).

A. The small recess looks to be (i), and the large recess seems to be (h).

Q. And is, or is not, the hinge pin on that socket head, in the Edmands, fixed to the head or fixed to the shank?

(Testimony of J. J. Buhler.)

A. I don't understand what you mean by the head of the shank.

Q. You have a socket head in your left hand.

A. That is the socket head.

Q. And have a wrench in your right hand. Which carries the hinge pin, the handle or——

A. The handle carries the pin.

Q. Is that pin (f) in the Edmands round, or is it flattened?

A. (f) where?

Q. Is it in Figure 1 of the Edmands, and also the model you have in your hand.

A. As much as I can see the pin, it is flat; round on the sides, flat on two sides, and round on two sides.

Q. And when the flattened part of that pin which is in—the flattened part of the pin gets out of that slot (i), that is when it locks?

A. Yes, in that position.

Q. In the use of the flex wrench is its essential that that wrench get in that position?

A. No, it shouldn't get into that position; instead of locking you should have it so it is free, could be turned around.

Q. Now comparing—you say that it has two advantages, one that it necessarily must be a one-handed wrench, and the other, that it is adapted to use standard sockets.

A. Yes.

Q. Is the Edmands device adapted to use standard sockets?

A. No, you couldn't use standard sockets with that, because there is no place to put standard sockets on here.

(Testimony of J. J. Buhler.)

Q. A mechanic understands standard, or usual sockets, to mean what?

A. A socket, a round socket, with a hole through both ends.

Q. Is the hold circular or non-circular? Do you understand what I mean?

A. No, I don't.

Q. Is the hole round, or is it angular in sections, the bore through the socket? Have you a socket there?

A. No, I haven't. I mean by a socket——

Q. Is that a standard socket, or not?

A. That is a standard socket.

Q. And that comprises what, to a mechanic?

A. One end fits the nut, and there is a hole through the other end for a handle.

Q. And the hole is angular instead of circular, the hole going through, so it won't turn around?

A. Yes.

Q. And you think that the Edmands wrench couldn't be used with one hand.

A. No, you would have a hard time using it with one hand, to get any speed or anything out of it; also he would be afraid it would drop off in using it in this position on a manifold, unless you happened—if you were working in the dark, or unless you were watching real close, you would be picking this thing on and off all the time; it would be bothering."

On Cross-examination,

the witness further testified: [88]

"Q. The Edmands wrench you would call a flex wrench just the same as the Eagle wrench, wouldn't you?

(Testimony of J. J. Buhler.)

A. No.

Q. Not a flex wrench.

A. No.

Q. Why isn't it?

A. Because it has a tendency to lock when you are using it with one hand.

Q. Is it in its general construction a flex wrench, intended for that use?

A. I couldn't say.

Q. You are not a trained mechanic?

A. Sir?

Q. You are not a trained mechanic?

A. I am a trained automobile mechanic, yes.

Q. Now taking the Edmands wrench, and taking that piece off there, that socket piece, and putting a hinge lug there, a male part, will that involve any difficulty to an ordinary mechanic?

A. How do you mean put an ordinary lug?

Q. Just take that piece off and replace that, and hinge permanently in place a male socket holder, could an ordinary mechanic do that if you asked him to?

A. No.

Q. He couldn't? That is all."

STEWART S. TUFTS,

a Barrister and Solicitor, practicing at Vancouver, British Columbia, was called as a witness on behalf of the plaintiff and testified that the plaintiffs Eagle and Langs were his clients and

(Testimony of J. J. Buhler.)

that acting in pursuance of their instructions he wrote a letter dated September 13, 1930 (Plaintiff's Exhibit 9) to the defendant company at 406 Burnside Street, Portland, and on September 27, 1930 wrote another letter (Plaintiff's Exhibit 10) to the defendant company at Milwaukie, Oregon; that he received a response to the letter dated September 27, 1930 by a letter from the defendant company dated October 2, 1930 (Plaintiff's Exhibit 11). These letters were received in evidence.

M. B. PENDLETON

was recalled by the plaintiff as a rebuttal witness and testified that during the period 1922 to 1929 it was his duty on behalf of the Plomb Tool Company to interview all inventors who came to the factory with ideas for the improvement of mechanic's tools; that during that period there was a repeated demand for some improvement in handles which could be used with the standard socket then in possession of garage mechanics; that during that period the Plomb Tool Company spent "a good many hundred dollars" attempting to [89] devise some sort of a jointed wrench which would meet the apparent demand. He said that his connection with the Plomb Tool Company began in 1918 and although it was not his responsibility until 1922 to interview inventors, he nevertheless saw them at the factory and examined various devices for the improvement of mechanic's tools; that his experience prior to 1922 was the same as it was subsequent to that date so far as the demand for a handle which could be used with standard sockets was concerned; that about 1925 or 1926 a salesman brought to the factory a drawing of a wrench which was substantially the same as the Eagle wrench; that some work was done in

(Testimony of M. B. Pendleton.)

connection with the type of wrench and finally in 1926 or 1927 the Plomb Tool Company began the manufacture of the Eagle wrench. He testified:

> "We then continued our investigation on this problem, and a series of events continued wherein we were able to locate the patentee, Samuel Eagle, after a great deal of difficulty, and then entered into negotiations with him to take out a license, because we felt that inasmuch as we had begun the manufacture of a wrench which seemed to meet a very great demand, and coincided with his wrench, that we should do the right and honorable thing by taking out a license. Meantime, however, we spent several hundred dollars in engineering work."

He testified that the Plomb Tool Company continued to manufacture the Eagle wrench because it met the requirements of a good tool which involved four tests: inexpensive to manufacture, correct in design, strong and "fool proof". He further testified:

> "Q. Now, in view of all that work that you were actually put to, what is your opinion as a tool manufacturer whether, with the Edmands tool before him, or the Fairchild tool before him, or any other tool shown in the patents, would a mechanic skilled in the art think of making the changes necessary to producing the Eagle patent?
>
> Mr. GEISLER: I object to the work "think". If you want to say "could" I have no objection.
>
> Q. What is your opinion, in regard to that, as an expert?
>
> A. My opinion is, it would amount to invention. [90]
>
> A. That it would amount to invention, to take the elements submitted and make an Eagle wrench out of it. Obviously after the Eagle wrench has been constructed it is

DEFENDANT'S EXHIBIT "R"

(Testimony of M. B. Pendleton.)

easy enough to look back and say that anybody can do it, because hindsight is always easier than foresight.

Q. What in your opinion is the main advantage of the Eagle wrench over the references cited by the defendant as prior art? Can you say that in a few words, what advantages?

A. The chief advantages are twofold. One is that the Eagle wrench is a one-handed wrench, and second, that the Eagle wrench is designed to be used with the usual standard sockets in possession of the trade."

By stipulation of counsel Defendant's Exhibit "R", a photograph of all of the exhibits introduced by the defendant was received in evidence and made a part of the record of the case.

Respectfully submitted,

CAKE & CAKE,
JUARAGUY & TOOZE,
W. E. RAMSEY,
Solicitors for Plaintiffs.

IT IS HEREBY STIPULATED that the foregoing statement may be approved.

CAKE & CAKE,
JUARAGUY & TOOZE,
W. E. RAMSEY,
Solicitors for Plaintiffs.
T. J. GEISLER,
Solicitor for Defendant.

Approved:

JAMES ALGER FEE,
District Judge.

Dated: January 29, 1934. [91]

[Title of Court and Cause.]

STIPULATION WITH REGARD TO TRANSCRIPT OF RECORD.

IT IS HEREBY STIPULATED on behalf of the above named parties that the foregoing is a true and complete transcript of record on appeal in this Court and that the Clerk of the United States District Court for the District of Oregon may certify the same as such transcript without comparison thereof with regard to the original record.

Dated Jany. 29, 1933.

W. E. RAMSEY,
of Solicitors for Plaintiff.
T. J. GEISLER,
Solicitor for Defendant.

[Endorsed]: Filed February 16, 1934. [92]

AND, to wit, on the 11th day of July, 1932, there was duly filed in said Court, the exhibits introduced in evidence at the trial of said cause, the exhibits which the praecipe of appellant directs to be included in the transcript of record being in words and figures as follows, to wit: [93]

PLAINTIFF'S EXHIBIT 1

[Title of Court and Cause.]

STIPULATION.

It is hereby STIPULATED AND AGREED between the plaintiffs, by and through their attorneys, Cake & Cake, and Jaureguy & Tooze and W. Elmer Ramsey, and defendant acting by and through its attorney, T. J. Geisler, as follows:

(1) It is hereby stipulated that the allegations contained in paragraph I of plaintiffs' Bill of Complaint pertaining to the

incorporation and the corporate character of the plaintiff, Plomb Tool Company, a Delaware Corporation, shall stand as admitted by the defendant and the plaintiff shall not be required to prove the said allegations.

(2) It is further stipulated that at the trial of the above cause that the plaintiffs may withdraw the original Letters Patent No. 1380643, involved in this case, and substitute therefor a printed uncertified copy thereof, which will stand in the place and stead of said original letters patent for all purposes whatsoever.

(3) That at the trial of this cause printed, photostatic or lithographed copies of all reference patents, domestic or foreign, furnished by United States Patent Office and pleaded or introduced to illustrate the prior art, or to define the scope of the patent, shall be accepted in evidence without certification, when offered by either party, with the same force and effect as [94] if they had been certified, subject only to proof of inaccuracy, if any, and to their competency and relevancy.

(4) The original assignment of an interest in the patent to the plaintiff, Langs, and the original exclusive license to the plaintiff, Plomb Tool Company, as alleged in paragraphs VI and VII of plaintiffs' complaint, or copies of the records thereof duly certified by the United States Patent Office, shall be sufficient proof of the execution, delivery and contents of said assignment and said license agreement.

Dated this 28th day of June, 1932.

CAKE & CAKE,
JAUREGUY & TOOZE,
W. ELMER RAMSEY,
Attorneys for Plaintiffs.
T. J. GEISLER,
Attorney for Defendant.

[Endorsed]: Filed July 11, 1932. [95]

AND AFTERWARDS, to wit, on the 30th day of January, 1934, there was duly filed in said Court, a Praecipe for Transcript, in words and figures as follows, to wit: [128]

[Title of Court and Cause.]

STIPULATION WITH REGARD TO TRANSCRIPT ON APPEAL.

G. H. Marsh, Esquire, Clerk of the above-entitled Court:

IT IS HEREBY STIPULATED on behalf of the above-named parties that the transcript of record will contain the following:

In making up the transcript on appeal now pending in this cause to the United States Circuit Court of Appeals for the Ninth Circuit, please incorporate the following portions of the record:

1. The Bill of Complaint, omitting the verification and the exhibit.
2. The Answer, omitting verification.
3. The condensed Statement of Evidence as approved by the Court.
4. The opinion of the Trial Court.
5. The Decree of the Trial Court, including Findings of Fact.
6. Motion for leave to file Petition for Rehearing.
7. Order granting leave to file Petition for Rehearing.
8. Petition for Rehearing.
9. Order denying Petition.
10. Petition on Appeal.
11. Assignments of Error.
12. Citation on Appeal.
13. Order Allowing Appeal.
14. Undertaking on Appeal.

15. Plaintiffs' Exhibits 1, 2, 7 and 8, which are respectively, a Stipulation, United States Patent No. 1,380,643 granted to Samuel Eagle, Plaintiff herein; the printed advertisement of the Eagle wrench; and United [129] States Patent No. 1,643,814 granted to John N. Peterson.

16. Defendant's Exhibits C, D without the certificate, E, F. G, H, I, J, K, Q and R, which are, respectively, United States Patent No. 348,565 issued to Mandeville; United States Patent No. 820,185 issued to Edmands; United States Patent No. 952,435 issued to Miller; United States Patent No. 1,168,204 issued to Helstrom; United States Patent No. 1,169,987 issued to Miottel; United States Patent No. 1,175,973 issued to Miller and Burg; United States Patent No. 1,209,658 issued to Baltzley; United States Patent No. 1,692,275 issued to Fairchild; United States Patent No. 1,302,197 issued to Miller and Burg; and replicas of pages 18 and 28 of the Plomb Tool Catalogue and which together constitute Exhibit Q, and the composite photographs of various physical exhibits constituting Defendant's Exhibit R.

It is further STIPULATED that an order may be entered by the Court directing that all the original exhibits used in the trial of this cause be sent to said Circuit Court of Appeals for the Ninth Circuit for its use.

Dated January 29th, 1934.

W. E. RAMSEY,
Of Solicitors for Plaintiffs,
T. J. GEISLER,
Solicitor for Defendant.

[Endorsed]: Filed January 30, 1934. [130]

AND AFTERWARDS, to wit, on the 16th day of March, 1934, there was duly filed in said Court, an Opinion, in words and figures as follows, to wit: [131]

[Title of Court and Cause.]

Plaintiff Eagle, in 1921, obtained a patent upon a wrench which was to be used in conjunction and cooperation with the "usual socket" also described and included in the specifications. The only claim set forth reads:

> "A wrench comprising a handle having a bifurcated shank, a socket support having one end mounted and pivotly secured between the branches of the shank bifurcations, and the other end squared, a nut engaging socket having a squared bore adapted to slidably receive the squared end of the socket support therein, and means carried by the handle and engageable with the rounded end of the socket support to hold the latter in different positions."

The defenses are lack of invention and lack of patentable combination. Many prior patents were cited.

By reference to the file wrapper it will be seen that considering the cancellations after rejection by the Patent Office, the single claim remaining must be narrowly construed even if valid. The office rejected a claim consisting of the words "a handle and a pivot pin connecting the handle pivotly to the head," on patents Mandeville (1886) and Miottel (1916), and the claim "a spring pressed catch carried by the shank and riding the rounded end of the head and engageable with an intent provided in the head," on Miottel, in view of Helstrom. Further the office rejected a claim in these words: "A socket open at both ends and adapted to slidably receive the socket support in one end thereof" on Battzley. An interesting feature of these rejections is that the

office considered the socket [132] support of plaintiff's claim with the squared end equivalent to an element in the Mandeville patent consisting of a shank provided with a square nut receiving chamber, and also as equivalent to the element in the Miottel shown as a recessed socket support. In other words the squared male element was held an equivalent of the recessed female element.

Plaintiff Eagle acquiesced in all these rejections and therefore must have conceded the validity thereof. His final contention before the Patent Office was:

> "The two claims now presented for consideration are thought to be allowable, inasmuch as none of the references show a socket support in the form of a solid body having one end pivotally secured to the handle, and the other end adapted to be slidably received in the bore of the nut engaging socket." With this construction applicant needs no fastening means for holding the socket support and the socket together, depending merely upon the frictional engagement between the parts.
>
> "The references also fail to disclose a socket support or a socket assembled together and held against relative pivotal movement, the socket support being pivotally secured onto the handle and adapted to be held at various positions with respect thereto."

After all the rejections and cancellations it is doubtful from comparison of the remaining claims with the rejected portions, just what novelty the Patent Office believed the claim covered. Probably the feature of permitting the socket head to be held in different positions is the differentiating factor. At all events it seems perfectly clear that if the office had discovered the Edmands Patent (1906) for a like wrench, the patent in suit would

not have issued. Hoe Company vs. Goss Press Co., 30 Fed. (2d) 271, 274.

The patent of Edmands (1906), which was not cited by the Patent Office, may be read in terms of Eagle, as follows:

> "A wrench comprising a handle having a bifurcated shank with a pivot pin between the ends thereof, a head or socket member provided with a nut engaging portion, and a lug projecting from the back of said nut engaging portion, and provided with an eye open to one edge of said lug and adapted to removably engage the pivot pin of said holding member, and means carried by the handle and engageable with the end of the socket support to hold the latter in different positions."

The Edmands Patent has the same features except that the socket support and the socket itself are in one piece and are adapted to be removed from the pivot pin when the eye is opposite to one edge [133] of the lug.

It is perfectly obvious that when the wrench is being used to remove a nut the functions performed by each member are the same, and the parts are functionally equivalent. The same operation is performed by each in the same way and by the same means. The socket engages and holds the nut for the turning operation, the socket support actuated by the handle turns the socket, the handle is the means by which the twisting force is applied, through the bifurcated shank, and the latter prevents relatively pivotal movement. Likewise the means carried by the handle and engageable with the socket support hold the latter in different positions.

It may be objected that the socket and socket support are mounted together, but that cannot affect the fact that for its useful purpose the functional effect is the same. The relation of the parts to one another is the same functionally in each tool.

On the other hand the methods of attachment if new in the art might themselves constitute invention. It is clear enough that the eye placed upon the lug to make it removable by Edmands, was not essential to holding the socket head in various positions, and could have readily been dispensed with if it had been desired only to perform that function. Furthermore, any mechanic instructed to make the head irremovable would have simply closed that gap and the function for the device for holding the head in various positions would have been as efficient as that upon the Eagle patent. No novelty can be found in this feature.

Considering the squared end for mounting the now standard sockets, it has been noted that the Patent Office holds interchangeable as an old device a squared male and a recessed female member. In the Fairchild Patent (1919) which was not cited, there appears as accessory to a ratchet wrench, a male plug or head slidably mounted in a socket. The same result can be obtained with an adapter, which is a device old in the art and permits a change of female member into a male part. Therefore patentability cannot be claimed for this feature. [134]

> "A new and analogous use of an old thing is not invention even though it effects results not before contemplated." E. I. Dupont vs. Glidden, 1 Fed. Supp. 1007, 1011. Howe Machine Co. vs. National Needle Co., 134 U. S. 388, 397; St. Germaine vs. Brunswick, 135 U. S. 227, 230.

It has been noted above that Edmands adopted the device of an interchangeable female member on his wrench in 1906. Since that time there have grown up the use of interchangeable standard sockets which are spoken of by the witnesses. Into these devices handles are mounted and held by friction, just as is exemplified in the Eagle patent. Such sockets are known to all mechanics, as is the method of using them with the handles held

only by friction. See Dennis vs. Great Northern Ry., 51 Fed. (2d) 796. Likewise this method is apparently shown in Fairchild and Baltzley, the latter of which was referred to by the Patent Office. Just the use of a standard socket and connection therewith by friction alone cannot avail the plaintiff in the attempt to sustain the patent.

Although all the elements of the claim may not be found in one patent, if they are all found in different patents and no new functional relationship is evolved, the patent cannot be sustained. Dilg vs. Geo. Dorgfeld & Co., 189 Fed. 588, 590; Keene vs. New Idea Spreader Co., 231 Fed. 701. This is true whether Eagle actually knew of the other patents or devices, or not.

> "While it is entirely true that the fact that this change had not occurred to a mechanic familiar with windmills is evidence of something more than mechanical skill in the person who did discover it, it is probable that no one of these was fully aware of the state of the art and the prior devices. But as before stated in determining the question of invention we must presume the patentee was fully informed of everything which preceded him, whether such were the actual fact or not." Mast vs. Stover Mfg. Co., 177 U. S. 485, 493.

When one looks at the Edmands Patent and considers the extensive use to which the standard sockets had been placed before plaintiff's patent was applied for, it is inconceivable that anyone, whether mechanical or not, if informed of the need of adapting the patented device to the use of the standard socket, could not have evolved the Eagle patent. [135]

It is insisted that because of the extended use which the device manufactured by the Plomb Tool Company has received, that this court is bound to find invention therein. But where the element of invention is lacking, widespread use will not prevail

to support a patent. Adams vs. Bellaire Stamping Co., 141 U. S. 539, 542. "The fact that the patented device has gone into general use, while evidence of its utility is not conclusive of its patentable novelty. * * * A patent must combine utility, novelty and invention. It may embrace utility and novelty in high degree and still be only the result of mechanical skill as distinguished from invention." Klein vs. City of Seattle, 77 Fed. 200, 204.

The patent laws are for the purpose of fostering invention, and when that element is found it is right and proper that the fruits thereof be protected. But it would be unfair and unjust to permit one by a clever combination of devices old in the art and which already belong to the public, to monopolize a field and take from the people at large what already belongs to them.

The patent in suit is declared invalid.

[Endorsed]: Filed March 16, 1934. [136]

AND AFTERWARDS, to wit, on Friday, the 16th day of March, 1934, the same being the 11th judicial day of the regular March term of said Court; present the Honorable James Alger Fee, United States District Judge, presiding, the following proceedings were had in said cause, to wit: [137]

[Title of Court and Cause.]

ORDER

On stipulation of the parties hereto and their respective solicitors,

IT IS ORDERED that all of the original exhibits used in the

trial of this cause be sent to the Circuit Court of Appeals for the Ninth Circuit for its use.

Dated this 16th day of March, 1934.

JAMES ALGER FEE

[Endorsed]: Filed March 16, 1934. [138]

United States of America,
District of Oregon—ss.

I, G. H. Marsh, Clerk of the District Court of the United States for the District of Oregon, do hereby certify that the foregoing pages, numbered from 3 to 138 inclusive, constitute the transcript of record upon the appeal in a cause in said court, in which Samuel Eagle, John William Lands, and Plomb Tool Company, a corporation are plaintiffs and appellants, and P. & C. Hand Forged Tool Company, a corporation, is defendant and appellee; that the said transcript has been prepared by me in accordance with the praecipe for transcript filed by said appellant, and has been by me compared with the original thereof, and is a full, true and complete transcript of the record and proceedings had in said Court in said cause, in accordance with the said praecipe, as the same appear of record and on file at my office and in my custody.

I further certify that the cost of the foregoing transcript is $33.25, and that the same has been paid by said appellant.

IN TESTIMONY WHEREOF I have hereunto set my hand and affixed the seal of said court, at Portland, in said District, this 17th day of March, 1934.

[Seal] G. H. MARSH
Clerk [139]

[Endorsed]: No. 7435. United States Circuit Court of Appeals for the Ninth Circuit, Samuel Eagle, John William Langs, and Plomb Tool Company, a Corporation, Appellants, vs. P. & C. Hand Forged Tool Company, a Corporation, Appellee. Transcript of Record. Upon Appeal from the District Court of the United States for the District of Oregon.

Filed March 23, 1934. Paul P. O'Brien, Clerk of the United States Circuit Court of Appeals for the Ninth Circuit.

DEFENDANT'S EXHIBIT L.

[Endorsed]: Filed Jul. 11, 1932. U. S. District Court, G. H. Marsh, Clerk.

[Endorsed]: Filed Mar. 23, 1934. U. S. Circuit Court, Paul P. O'Brien, Clerk.

DEPARTMENT OF COMMERCE
United States Patent Office

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records of the office of the File Wrapper and Contents in the matter of the

Letters Patent of
SAMUEL EAGLE,

Number 1,380,643, Granted June 7, 1921,

for

Improvement in Wrenches.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this tenth day of December, in the year of our Lord one thousand nine hundred and thirty, and of the Independence of the United States of America the one hundred and fifty-fifth.

[Seal] THOMAS E. ROBERTSON
Commissioner of Patents.

Attest:
D. E. WILSON
Chief of Division.

Number (Series of 1915),
416731 1920 (Ex'r's Book) 19-105
Div. 14 Patent No. 1380643
Division of App., No....., filed....., 19.....
Jun. 7, 1921

Name SAMUEL EAGLE
of Gilbert Plains, Manitoba,
County of .....
State of Canada.
Invention Wrenches.

Original

Parts of Application Filed.

Petition	Oct. 13, 1920
Affidavit	" ", 1920
Specification	" ", 1920
Drawing	" ", 1920
Photo Copy	, 192
First Fee Cash	$15, Oct. 13, 1920.
" " Cert.	, 192
Appl. filed complete	Oct. 13, 1920

Examined and Passed for Issue Feb. 11, 1921.
N. J. Brumbaugh Exr. Div. 14.
Notice of Allowance February 11, 1921
By Commissioner.
Final Fee Cash #20 May 10, 1921
" " Cert. ,192

Renewed

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..... Exr. Div. .....
....., 192
By Commissioner.
....., 192
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....., 192

Patented Jun. 7, 1921
Attorney Fetherstonhaugh & Co., Victor Bld'g., City
Associate Attorney .....
(No. of Claims Allowed 1) Print Claim..... in O. G. (Cl. 81-58)
Title as Allowed ..... Wrench .....

U. S. Patent Off. Oct. 18, 1920, Division 14
$15 Rec'd Oct. 13, 1920 C. C. U. S. Pat. Office
643 Serial No. 416,731 Paper No. 1
Application

TO THE COMMISSIONER OF PATENTS.
Washington.

Your Petitioner, Samuel Eagle, a subject of the King of Great Britain, and a resident of the Town of Gilbert Plains, in the Province of Manitoba, Canada, whose Post Office address is Gilbert Plains, Manitoba, Canada prays that Letters Patent may be granted to him for certain new and useful Improvements in "WRENCHES" set forth in the annexed specification, and he hereby appoints ~~—Fred B. Fetherstonhaugh, practicing under the firm name of —~~ Fetherstonhaugh (Fred B. Fetherstonhaugh and T. Lionel Tansley) Reg. No. 11248 & Co., ~~—of the City of Winnipeg, in the Province of Manitoba,~~

Victor Building, D. C.
~~Canada, and of the City of~~— Washington, ~~—in the District of Columbia—~~, his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent office connected therewith.

SAMUEL EAGLE

Signed at Winnipeg, in the Province of Manitoba, this 23rd day of September, 1920.

In the Presence of:

GERALD ROXBURGH

K. B. WAKEFIELD

[Seal]

Dominion of Canada
Province of Manitoba
City of Winnipeg—ss.

I, Harold S. Tewell, Vice Consul of the United States of America, at Winnipeg, Manitoba, Canada, duly commissioned and qualified, do hereby certify that G. S. ROXBURGH is, to the best of my knowledge and belief, a Notary Public in and for the Province of Manitoba, and that he is duly authorized to administer oaths and take affirmations and acknowledgments; and that, to the best of my knowledge and belief, full faith and credit are due to his official acts as a Notary Public.

Given under my hand and seal of office at Winnipeg, Manitoba, Canada, on this sixth day of October, 1920.

HAROLD S. TEWELL

Vice Consul of the United States of America.

[Consular Service Fee Stamp, in amount of $2.00, affixed and cancelled.]

TO ALL WHOM IT MAY CONCERN:

Be It Known that I, SAMUEL EAGLE, of the town of Gilbert Plains, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in wrenches of which the following is the specification.

The invention relates to improvements in wrenches and particularly to socket wrenches and the principal object of the invention is to provide a simply constructed and inexpensive and durable wrench, which can be easily and quickly attached to the usual socket and is arranged so that the handle can be brought to a position axially alined with the socket or swung sidewise as occasion demands.

A further object is to arrange the wrench so that the handle can be releasably locked in its axial position.

With the above objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claims, reference being had to the accompanying drawing in which:

Fig. 1 is a perspective view of the complete wrench showing the head situated above the socket.

Fig. 2 is a sectional view through the head end of the wrench and also through the socket.

Fig. 3 is an inverted plan view of the socket.

In the drawing like characters of reference indicate corresponding parts in the several figures.

1 is the handle of the wrench which is suitably shaped for gripping purposes. One end of the handle is decreased in diameter as indicated at 2, and to this end I secure in any suitable

manner a fixed shank 3, which has the forward and bifurcated or forked to receive the upper end of the head 4 which is pivotally fastened to the shank by a cross pin 5 passing through the forks.

The head has the lower end square in horizontal section and the upper end of the head is semi-circular as indicated at 6 and is provided at the top with a depression or indent 7 which is adapted to receive a catch 8 slidably mounted in the shank and normally pressed toward the head by the action of an inserted spring 9.

This latter arrangement is such that when the handle 1 is swung into a position axially alined with the head the projecting end of the catch will enter the indent and have a tendency to lock the parts so positioned. The end of the catch is rounded so that upon pressure being brought on the handle the catch can be sprung out of the indent to release it to swing sidewise.

This tool is especially provided for use with wrench sockets 10 which have their upper ends squared as indicated at 11 to receive the square end of the head and their lower ends shaped to fit a nut. I might here state that this socket varies in practice depending upon the work and may have a hexagonal opening such as shown at 12 or any other sided opening depending on the type of nut on which it is to be used.

A tool of this kind is particularly useful where one has to get under a machine to do the work, such as under an automobile. After having placed the socket on a nut one enters the head 4 in the socket with the handle straight and then by swinging the handle to the side can get considerable leverage to undo the nut.

In using the tool to start a nut the handle is brought to a position such that it is axially alined with the socket and then by turning the handle around by a rolling action between the

hands, the work can be easily accomplished.

What I claim as my invention is:

(1) In a wrench, a head and a handle pivotally secured to the head to allow of swinging movement in a vertical plane.

Sub. A 1 Claim

(2) In a wrench, a head having a squared end, a handle and a pivot pin connecting the handle pivotally to the head.

(3) In a wrench, a head having one end squared, a shank spanning the head and pivotally connected thereto by a pivot pin and a handle secured to the shank.

(4) In a wrench, a head having one end squared and the other end rounded, a shank spanning the rounded end of the head and pivotally connected thereto by a pivot pin, a handle permanently secured to the shank and a spring pressed catch carried by the shank and riding the rounded end of the head and engagable with an indent provided in the head.

Signed at Winnipeg, this 23rd day of September, 1920.

Eagle

SAMUEL EAGLE

In the presence of:

GERALD S. ROXBURGH

K. B. WAKEFIELD

OATH

Dominion of Canada,
Province of Manitoba,
City of Winnipeg.

Samuel Eagle, the above named Petitioner, being sworn, deposes and says that he is a subject of the King of Great Britain, and a resident of the Town of Gilbert Plains in the Province of Manitoba, Canada; that he verily believes himself to be the original, first and sole Inventor of certain new and useful Im-

provements in "WRENCHES" described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for Patent on said Improvements has been filed by him or his representatives or assigns in any country foreign to the United States, except in Canada, filed the 23rd of June, 1920 under Serial No. 242719.

SAMUEL EAGLE

Sworn to and subscribed before me at Winnipeg, this 23 day of September 1920.

[Seal] GERALD S. ROXBURGH

A Notary Public, in and for the Province of Manitoba.

Div. 14 Room 323 2-260 L/KR Paper No. 2

Address only "The Commissioner of Patents, Washington, D. C.," and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
United States Patent Office
Washington, December 9, 1920.

Fetherstonhaugh & Co.,
Victor Bldg.,
Washington, D. C.

Patent Office
Mailed Dec. 9, 1920

Please find below a communication from the EXAMINER in charge of the application of Samuel Eagle; Serial No. 416,731; Filed October 13, 1920; for WRENCH.

R. F. WHITEHEAD
Commissioner of Patents.

This case has been examined and the following art is cited:
MIOTTEL, 1,169,987, Feb. 1, 1916, (81-177);
MANDEVILLE, 348,565, Sept. 7, 1886, (81-177E);
HELSTROM, 1,168,204, Jan. 11, 1916, (81-58).

Claims 1, 2, and 3 are rejected as failing to patentably distinguish from either Miottel or Mandeville, above cited. The elements *B* of Mandeville and 3 of Miottel are considered the equivalent of applicant's member 4.

Claim 4 is rejected on Miottel in view of Helstrom, above cited. No invention would be involved in placing Helstrom's member 30 in the member 2 of Miottel. The claim is further ob-

jected as because there is no basis in the preceding part of the claim for the "indent" in the next to the last line.

C E 8

N. J. BRUMBAUGH
Examiner, Div. 14.

Serial No. 416,731 Paper No. 3

AMENDMENT A.

U. S. Patent Office, Jan. 8, 1920, Division 14
Application Div. U. S. Patent Office, Jan. 7, 1921

IN THE UNITED STATES PATENT OFFICE

In re application
Samuel Eagle, WRENCHES.
Filed Oct. 13, 1920,
Serial No. 416,731.

Hon. Commissioner of Patents,

Sir:

In response to the official action of Dec. 9, 1920, please enter the following amendment:

Erase the claims now in the case and substitute:

~~1. A wrench comprising a handle, a socket support pivotally secured thereto and a socket open at both ends and adapted to slidably receive the socket support in one end thereof.~~

2. A wrench comprising a handle having a bifurcated shank, a socket support having one end mounted and pivotally secured between the branches of the shank bifurcations and the other end squared, a nut engaging socket having a squared bore adapted to slidably receive the squared end of the socket support therein, and means carried by the handle and engageable with the rounded end of the socket support to hold the latter in different positions.

[Sig.]

Remarks.

The two new claims now presented for consideration are thought to be allowable, inasmuch as none of the references show a socket support in the form of a solid body having one end pivotally secured to the handle and the other end adapted to be slidably received in the bore of the nut engaging socket. With this construction applicant needs no fastening means for holding the socket support and the socket together depending merely upon the frictional engagement between the parts. The references also fail to disclose a socket support and socket assembled together and held against relative pivotal movement, the socket support being pivotally secured onto the handle and adapted to be held at various positions with respect thereto.

Respectfully submitted,

SAMUEL EAGLE.

By FETHERSTONHAUGH & CO.

Attorneys.

Washington, D. C.,

Div. 14 Room 323 2-260 L/KR Paper No. 4

Address only "The Commissioner of Patents, Washington, D. C.," and not any official by name.

All communications respecting this application should give the serial number, date of filing, title of invention, and name of the applicant.

DEPARTMENT OF THE INTERIOR
United States Patent Office
Washington, January 13, 1921.

Fetherstonhaugh & Co.,
Victor Bldg.,
Washington, D. C.

Patent Office
Mailed Jan. 13, 1921

Please find below a communication from the EXAMINER in charge of the application of Samuel Eagle; Serial No. 416,731; Filed October 13, 1920; for WRENCH.

R. F. WHITEHEAD
Commissioner of Patents.

This case, as amended Jan. 7, 1921, has been reexamined, and the following art is cited:

BALTZLEY, 1,209,658, Dec. 26, 1916, (81-58).

Claim 1 is rejected as failing to distinguish patentably from Baltzley. Patentee's member 12 constitutes a pivoted member equivalent to applicant's member 4. Member 10 is a socket open at both ends.

Claim 2 is allowable, as at present advised.

C. E. L.

N. J. BRUMBAUGH
Examiner, Div. 14.

Room 323.
Application Div. U. S. Patent Office, Feb. 7, 1921
U. S. Patent Office, Feb. 8, 1921, Division 14

Serial No. 416,731 Paper No. 5

AMENDMENT B.

IN THE UNITED STATES PATENT OFFICE.

In re application
Samuel Eagle, WRENCHES
Filed Oct. 13, 1920,
Serial No. 416,731.
Hon. Commissioner of Patents,
Sir:

In response to the official action of Jan. 13, 1921, please enter the following amendment:

Erase claim 1 and the *numeral* of *claim 2.*

Remarks.

The rejected claim having been cancelled, this case now appears to be in condition to be passed to issue, and such action is requested.

Respectfully submitted,
SAMUEL EAGLE.
By FETHERSTONHAUGH & CO.
Attorneys.

Washington, D. C.

Div. 14 — KR 2-181 Serial No. 416,731

Address only the Commissioner of Patents,
Washington, D. C.

Department of the Interior
UNITED STATES PATENT OFFICE
Washington, February 11, 1921.

Samuel Eagle,

Sir: Your APPLICATION for a patent for an IMPROVEMENT in WRENCH, filed October 13, 1920, has been examined and ALLOWED.

The final fee, TWENTY DOLLARS, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent on this application will be withheld, unless renewed with an additional fee of $15, under the provisions of Section 4897, Revised Statutes.

The office delivers patents upon the day of their date, and on which their term begins to run. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will require about four weeks, and such work will not be undertaken until after payment of the necessary fee.

When you send the final fee you will also send, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAME OF THE ASSIGNEES.

If you desire to have the patent issue to ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of final fee.

After issue of the patent uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

Final fees will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

Respectfully,
M. H. COULSTON
Acting Commissioner of Patents.

Fetherstonhaugh & Co.,
Victor Bldg.,
Washington, D. C.

In remitting the final fee give the serial number at the head of this notice.

Uncertified checks will not be accepted.

$20 Rec'd May 10, 1921. C. C. U. S. Pat. Office.—J.

MEMORANDUM
Of Fee Paid at United States Patent Office.
(Be careful to give correct Serial No.)

Serial No. 416,731 May 10, 1921
Inventor: SAMUEL EAGLE
Patent to be Issued to See file
Name of Invention, as Allowed: Wrenches
Date of Payment: May 10, 1921
Fee: $20.00 Final
Date of Filing: Oct. 13, 1920
Date of Circular of Allowance: Feb. 11, 1921

The Commissioner of Patents will please apply the accompanying fee as indicated above.

FETHERSTONHAUGH & CO.
Attorney.

Send Patent to Attorneys

S. EAGLE.
WRENCH.
APPLICATION FILED OCT. 13, 1920.

1,380,643. Patented June 7, 1921.

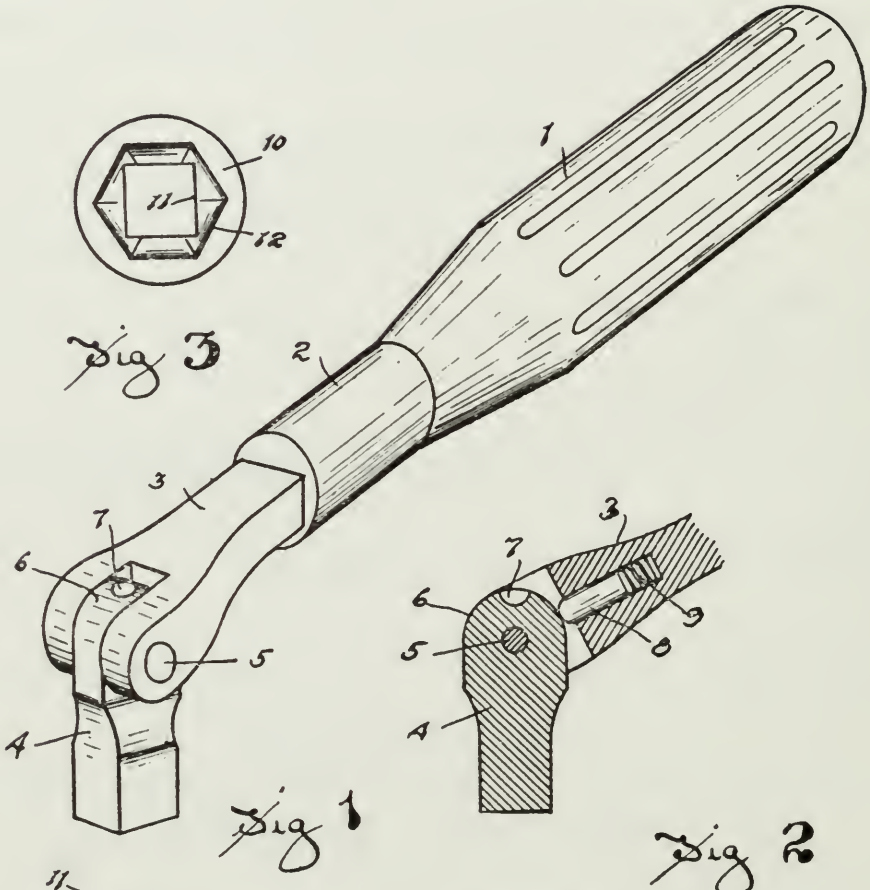
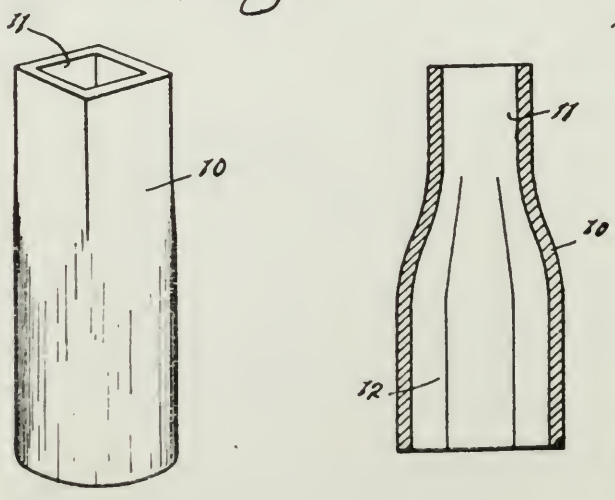


Fig 3

Fig 1

Fig 2



INVENTOR
S. Eagle
BY Fulwiderlaughlin
ATTYS

UNITED STATES PATENT OFFICE.

Samuel Eagle, of Gilbert Plains, Manitoba, Canada.

Wrench.

1,380,643. Specification of Letters Patent.

Patented June 7, 1921.

Application filed October 13, 1920. Serial No. 416,731.

To all whom it may concern:

Be it known that I, SAMUEL EAGLE, of the town of Gilbert Plains, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Wrenches, of which the following is the specification.

The invention relates to improvements in wrenches and particularly to socket wrenches and the principal object of the invention is to provide a simply constructed and inexpensive and durable wrench which can be easily and quickly attached to the usual socket and is arranged so that the handle can be brought to a position axially alined with the socket or swung sidewise as occasion demands.

A further object is to arrange the wrench so that the handle can be releasably locked in its axial position.

With the above objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claim, reference being had to the accompanying drawing in which:—

Figure 1 is a perspective view of the complete wrench showing the head situated above the socket.

Fig. 2 is a sectional view through the head end of the wrench and also through the socket.

Fig. 3 is an inverted plan view of the socket.

In the drawing like characters of reference indicate corresponding parts in the several figures.

1 is the handle of the wrench which is suitably shaped for gripping purposes. One end of the handle is decreased in diameter as indicated at 2, and to this end I secure in any suitable manner a fixed shank 3, which has the forward end bifurcated or forked to receive the upper end of the head 4 which is pivotally fastened to the shank by a cross pin 5 passing through the forks.

The head has the lower end square in horizontal section and the upper end of the head is semi-circular as indicated at 6 and is provided at the top with a depression or indent 7 which is adapted to receive a catch 8 slidably mounted in the shank and normally pressed toward the head by the action of an inserted spring 9.

This latter arrangement is such that when the handle 1 is swung into a position axially alined with the head the projecting end of the catch will enter the indent and have a

tendency to lock the parts so positioned. The end of the catch is rounded so that upon pressure being brought on the handle the catch can be sprung out of the indent to release it to swing sidewise.

This tool is especially provided for use with wrench sockets 10 which have their upper ends squared as indicated at 11 to receive the square end of the head and their lower ends shaped to fit a nut. I might here state that this socket varies in practice depending upon the work and may have a hexagonal opening such as shown at 12 or any other sided opening depending on the type of nut on which it is to be used.

A tool of this kind is particularly useful where one has to get under a machine to do the work, such as under an automobile. After having placed the socket on a nut one enters the head 4 in the socket with the handle straight and then by swinging the handle to the side can get considerable leverage to undo the nut.

In using the tool to start a nut the handle is brought to a position such that it is axially alined with the socket and then by turning the handle around by a rolling action between the hands, the work can be easily accomplished.

What I claim as my invention is:—

A wrench comprising a handle having a bifurcated shank, a socket support having

one end mounted and pivotally secured between the branches of the shank bifurcations and the other end squared, a nut engaging socket having a squared bore adapted to slidably receive the squared end of the socket support therein, and means carried by the handle and engageable with the rounded end of the socket support to hold the latter in different positions.

Signed at Winnipeg, this 23rd day of September, 1920.

SAMUEL EAGLE.

In the presence of—

GERALD S. ROXBURGH,

K. B. WAKEFIELD.

1920

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